1626

Access DB# _____

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: R GITOMER Examiner #: 6963 Date: 7/28/03
Art Unit: 1651 Phone Number 308-0732 Serial Number: 09/938,334
Mail Box and Bldg/Room Location: 11301 / 11D11 Results Format Preferred (circle): PAPER DISK E-MAIL

If mor than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

_____

Earliest Priority Filing Date: _____

***For Sequence Searches Only** Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

JAN

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Jan Delaval
Reference Librarian
Biotechnology & Chemical Library
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jan.delaval@uspto.gov

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Type of Search

NA Sequence (#) _____
AA Sequence (#) _____
Structure (#) _____
Bibliographic ✓
Litigation _____
Fulltext _____
Patent Family _____
Other _____

Vendors and cost where applicable

STN ✓
Dialog _____
Questel/Orbit _____
Dr.Link _____
Lexis/Nexis _____
Sequence Systems _____
WWW/Internet _____
Other (specify) _____

PTO-1590 (8-01)

STIC Search Report
Biotech-Chem Library

STIC Database Tracking Number: 99836

TO: Ralph J Gitomer **Location: 11d11 / 11b01** **Tuesday, August 12, 2003** **Art Unit: 1651** **Phone: 308-0732** **Serial Number: 09 / 938334**	**From: Jan Delaval** **Location: Biotech-Chem Library** **CM1-1E07** **Phone: 308-4498** **jan.delaval@uspto.gov**

Search Notes

Jan Delaval
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Property values tagged with IC are from the ZIC/VINITI data file
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Jan Delaval
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STRUCTURE FILE UPDATES:   11 AUG 2003  HIGHEST RN 565156-77-6
DICTIONARY FILE UPDATES:  11 AUG 2003  HIGHEST RN 565156-77-6

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2003

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Crossover limits have been increased.  See HELP CROSSOVER for details.

Experimental and calculated property data are now available.  See HELP
PROPERTIES for more information.  See STNote 27, Searching Properties
in the CAS Registry File, for complete details:
http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf

=> d ide can tot l77

L77  ANSWER 1 OF 5  REGISTRY  COPYRIGHT 2003 ACS on STN
RN   14127-61-8  REGISTRY
CN   Calcium, ion (Ca2+) (8CI, 9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   Ca2+
CN   Calcium (II) ion
CN   Calcium cation
CN   Calcium dication
CN   Calcium ion
CN   Calcium ion(2+)
CN   Calcium(2+)
CN   Calcium(2+) ion
MF   Ca
CI   COM
LC   STN Files:   ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO,
       CA, CABA, CAPLUS, CASREACT, CEN, CHEMINFORMRX, CIN, DDFU, DETHERM*,
       DRUGU, EMBASE, IFICDB, IFIPAT, IFIUDB, NIOSHTIC, PIRA, PROMT, TOXCENTER,
       ULIDAT, USPAT2, USPATFULL, VETU
         (*File contains numerically searchable property data)


Ca2+

            8108 REFERENCES IN FILE CA (1947 TO DATE)
             121 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
            8128 REFERENCES IN FILE CAPLUS (1947 TO DATE)

REFERENCE   1:  139:109175

REFERENCE   2:  139:108539

REFERENCE   3:  139:107940

REFERENCE   4:  139:107076

REFERENCE   5:  139:106856
```

REFERENCE 6: 139:106756

REFERENCE 7: 139:106547

REFERENCE 8: 139:106518

REFERENCE 9: 139:105795

REFERENCE 10: 139:105675

L77 ANSWER 2 OF 5 REGISTRY COPYRIGHT 2003 ACS on STN
RN **9051-97-2** REGISTRY
CN **.beta.-D-Glucan, (1.fwdarw.3)- (9CI)** (CA INDEX NAME)
OTHER NAMES:
CN (1,3)-.beta.-Glucan
CN (1.fwdarw.3)-.beta.-D-Glucan
CN Adjuvax
CN Drieline
CN GL 32
CN Glucan F
CN Guardoran
CN Highcareen GS
CN ImmuStim
CN Poly(1.fwdarw.3)-.beta.-D-glucan
CN Polysaccharide 13140
CN SSG
CN TAK
CN TAK (polysaccharide)
CN TAK-N
CN Uniglucan 51
CN VitaStim
DR 9050-90-2, 9052-00-0, 130809-04-0, 31667-87-5, 199665-06-0
MF Unspecified
CI PMS, COM, MAN
PCT Manual registration
LC STN Files: ADISINSIGHT, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAPLUS, CHEMCATS, CIN, CSNB, DDFU, DRUGNL, DRUGU, DRUGUPDATES, EMBASE, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, NIOSHTIC, PHAR, PROMT, RTECS*, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
1194 REFERENCES IN FILE CA (1947 TO DATE)
133 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
1197 REFERENCES IN FILE CAPLUS (1947 TO DATE)

REFERENCE 1: 139:84363

REFERENCE 2: 139:81513

REFERENCE 3: 139:74022

REFERENCE 4: 139:67094

REFERENCE 5: 139:65632

REFERENCE 6: 139:57992

REFERENCE 7: 139:51863

REFERENCE 8: 139:51366

REFERENCE 9: 139:41574

REFERENCE 10: 139:35203

L77 ANSWER 3 OF 5 REGISTRY COPYRIGHT 2003 ACS on STN
RN **9008-22-4** REGISTRY
CN Laminaran (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN **.beta.-D-Glucan, (1.fwdarw.3)-**
CN Goemar H 11
CN Iodus 40
CN Laminarin
DEF Laminarin. Laminarin obtained from Laminaria digitata. It is a .beta.-(1-3)-linked D-glucan with .beta.-(1-6) linkages. The major M-series contains 20-30 glucosyl residues linked to terminal mannitol, and a minor G-series with 22-28 glucosyl residues. There is a 3 to 1 ratio of M-series to G-series molecules. There is an average of 1.3 branches per molecule.
MF Unspecified
CI PMS, COM, MAN
PCT Manual registration
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMLIST, CIN, CSCHEM, DDFU, DRUGU, EMBASE, MEDLINE, MRCK*, NAPRALERT, PROMT, SPECINFO, TOXCENTER, USPATFULL
(*File contains numerically searchable property data)
Other Sources: EINECS**, NDSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
839 REFERENCES IN FILE CA (1947 TO DATE)
36 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
840 REFERENCES IN FILE CAPLUS (1947 TO DATE)

REFERENCE 1: 139:81138

REFERENCE 2: 139:57737

REFERENCE 3: 139:51655

REFERENCE 4: 139:50050

REFERENCE 5: 139:18573

REFERENCE 6: 139:12302

REFERENCE 7: 138:384173

REFERENCE 8: 138:381837

REFERENCE 9: 138:374184

REFERENCE 10: 138:343125

L77 ANSWER 4 OF 5 REGISTRY COPYRIGHT 2003 ACS on STN
RN **9002-10-2** REGISTRY
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Catechol oxidase
CN Catecholase
CN Chlorogenate oxidase
CN Chlorogenic acid oxidase
CN Chlorogenic oxidase

CN Cresolase
CN Dihydroxyphenylalanine oxidase
CN Diphenol oxidase
CN Diphenolase
CN Dopa oxidase
CN E.C. 1.10.3.1
CN E.C. 1.14.18.1
CN Gluteomorphinase
CN Monophenol monooxidase
CN Monophenol monooxygenase
CN Monophenol oxidase
CN Monophenolase
CN o-Diphenol oxidase
CN o-Diphenol oxidoreductase
CN o-Diphenol:oxygen oxidoreductase
CN o-Diphenolase
CN o-Phenolase
CN Phenol oxidase
CN Phenolase
CN Polyaromatic oxidase
CN Polyphenol oxidase
CN Polyphenolase
CN Pyrocatechol oxidase
CN Tyrosinase
CN Tyrosine-dopa oxidase
DR 9029-43-0, 9035-79-4, 9037-10-9, 9040-99-7, 9041-00-3, 37325-67-0
MF Unspecified
CI MAN
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, DDFU, DRUGU, EMBASE, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, NAPRALERT, PIRA, PROMT, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
10768 REFERENCES IN FILE CA (1947 TO DATE)
101 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
10778 REFERENCES IN FILE CAPLUS (1947 TO DATE)

REFERENCE 1: 139:110768

REFERENCE 2: 139:106126

REFERENCE 3: 139:99779

REFERENCE 4: 139:98073

REFERENCE 5: 139:98063

REFERENCE 6: 139:98010

REFERENCE 7: 139:97342

REFERENCE 8: 139:97269

REFERENCE 9: 139:97183

REFERENCE 10: 139:96375

L77 ANSWER 5 OF 5 REGISTRY COPYRIGHT 2003 ACS on STN
RN **7440-70-2** REGISTRY

CN Calcium (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Atomic calcium
CN Blood-coagulation factor IV
CN Calcium atom
CN Calcium element
CN Praval
DR 8047-59-4
MF Ca
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PHARMASEARCH, PIRA, PROMT, RTECS*, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

Ca

321928 REFERENCES IN FILE CA (1947 TO DATE)
6693 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
322246 REFERENCES IN FILE CAPLUS (1947 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 139:110739

REFERENCE 2: 139:110738

REFERENCE 3: 139:110736

REFERENCE 4: 139:110732

REFERENCE 5: 139:110714

REFERENCE 6: 139:110704

REFERENCE 7: 139:110691

REFERENCE 8: 139:110687

REFERENCE 9: 139:110667

REFERENCE 10: 139:110653

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FILE COVERS 1907 - 12 Aug 2003 VOL 139 ISS 7
FILE LAST UPDATED: 11 Aug 2003 (20030811/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d all hitstr tot l75

L75 ANSWER 1 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:964547 HCAPLUS
DN 138:21762
TI **Phenoloxidase**-active **insect** body fluid **extract** in composition and diagnostic kit for detecting peptidoglycan
IN **Park, Bu-Soo; Joo, Chang-Hun**; Kim, Moon-Suk; Song, Seung-Hwan; Yoon, Jong-Won; Park, Yeon-Sung; Kim, Hong-Lak; **Auh, Joong-Hyuck**; Cho, Tae-Hoon; **Lee, Bok-Luel**; Park, Ji-Won; Yeo, Jeong-Mi; Kim, Hyun-Sic
PA **Samyang Genex Corporation, S. Korea**
SO PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q001-26
CC 9-2 (Biochemical Methods)
Section cross-reference(s): 7, 10, 12, 14
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002101083	A1	20021219	WO 2002-KR1086	20020607

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI KR 2001-31890 A 20010608
KR 2002-31856 A 20020607

AB The present invention relates to a compn. for selectively detecting an extremely small amt. of peptidoglycan in samples, a prepn. method of the compn., and a detection kit for peptidoglycan. It is possible to quantify a small amt. of peptidoglycan contained in human **blood**, tissue, body fluid, water or food, and to diagnose an infection of microorganism with peptidoglycan as a component of cell wall using the compn. and the detection kit. In addn., the compn. can be applied for a diagnostic reagent for detecting an infection of Gram-pos. bacteria in animal or human being in advance, and thus, can be used for the prevention or treatment of food poisonings and Bacterial sepsis. The compn. comprises an **ext.** of **insect** body fluid having **phenoloxidase** activity on the peptidoglycan without the addn. of **calcium**. An **ext.** was prepd. from **plasma** and **hemocyte** of Galleria mellonella **larvae** and tested.

ST **phenoloxidase insect ext** peptidoglycan diagnostic kit; Galleria **larva ext** peptidoglycan detection

IT Animal tissue
Waters
(anal. of; **phenoloxidase**-active **insect** body fluid **ext.** in compn. and diagnostic kit for detecting peptidoglycan)
IT Gram-positive bacteria (Firmicutes)
Microorganism
(diagnosis of infection with; **phenoloxidase**-active **insect** body fluid **ext.** in compn. and diagnostic kit for detecting peptidoglycan)
IT Infection
(diagnosis of; **phenoloxidase**-active **insect** body fluid **ext.** in compn. and diagnostic kit for detecting peptidoglycan)
IT **Larva**
(**ext.** of body fluid of Galleria mellonella; **phenoloxidase**-active **insect** body fluid **ext.** in compn. and diagnostic kit for detecting peptidoglycan)
IT Galleria mellonella
(**ext.** of body fluid of **larvae** of; **phenoloxidase**-active **insect** body fluid **ext.** in compn. and diagnostic kit for detecting peptidoglycan)
IT Body fluid
(**ext.** of **insect** and anal. of human; **phenoloxidase**-active **insect** body fluid **ext.** in compn. and diagnostic kit for detecting peptidoglycan)
IT Carbohydrates, uses
RL: NUU (Other use, unclassified); USES (Uses)
(**ext.** prepn. using chromatog. column contg.; **phenoloxidase**-active **insect** body fluid **ext.** in compn. and diagnostic kit for detecting peptidoglycan)
IT Buffers
Chelating agents
Liquid chromatography
Solvents
(in **insect** body fluid **ext.** prepn.; **phenoloxidase**-active **insect** body fluid **ext.** in compn. and diagnostic kit for detecting peptidoglycan)
IT **Blood plasma**
(**insect**; **phenoloxidase**-active **insect** body fluid **ext.** in compn. and diagnostic kit for detecting peptidoglycan)
IT **Hemocyte**
(**lysate** of **insect** body fluid; **phenoloxidase**-active **insect** body fluid **ext.** in compn. and diagnostic kit for detecting peptidoglycan)
IT Lipopolysaccharides
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(peptidoglycan detection in presence of; **phenoloxidase**-active **insect** body fluid **ext.** in compn. and diagnostic kit for detecting peptidoglycan)
IT Animal
Blood analysis
Diagnosis
Food analysis
Food poisoning
Human
Insecta
Samples
Sepsis
Test kits
(**phenoloxidase**-active **insect** body fluid **ext**. in compn. and diagnostic kit for detecting peptidoglycan)
IT Peptidoglycans

RL: ANT (Analyte); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**phenoloxidase**-active **insect** body fluid **ext**
. in compn. and diagnostic kit for detecting peptidoglycan)

IT Vinyl compounds, uses
RL: NUU (Other use, unclassified); USES (Uses)
(polymers, **ext**. prepn. using chromatog. column contg.;
phenoloxidase-active **insect** body fluid **ext**.
in compn. and diagnostic kit for detecting peptidoglycan)

IT 60-00-4, EDTA, uses 68-04-2, Trisodium citrate 77-92-9, Citric acid, uses 7647-14-5, Sodium chloride, uses 9050-94-6, Sephadex G-100 71933-13-6
RL: NUU (Other use, unclassified); USES (Uses)
(in **insect** body fluid **ext**. prepn.;
phenoloxidase-active **insect** body fluid **ext**.
in compn. and diagnostic kit for detecting peptidoglycan)

IT **14127-61-8**, **Calcium** ion, miscellaneous
RL: MSC (Miscellaneous)
(**insect** body fluid **ext**. having
phenoloxidase activity without; **phenoloxidase**-active
insect body fluid **ext**. in compn. and diagnostic kit
for detecting peptidoglycan)

IT **9051-97-2**
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(peptidoglycan detection in presence of; **phenoloxidase**-active
insect body fluid **ext**. in compn. and diagnostic kit
for detecting peptidoglycan)

IT **9002-10-2P**, **Phenoloxidase**
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); CAT (Catalyst use); DGN (Diagnostic use); PUR (Purification or recovery); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**phenoloxidase**-active **insect** body fluid **ext**
. in compn. and diagnostic kit for detecting peptidoglycan)

IT 10043-52-4, **Calcium** chloride, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**phenoloxidase**-active **insect** body fluid **ext**
. in compn. and diagnostic kit for detecting peptidoglycan)

IT 452-86-8, 4-Methylcatechol 61478-25-9
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(substrate; **phenoloxidase**-active **insect** body fluid
ext. in compn. and diagnostic kit for detecting peptidoglycan)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Seikagaku Kogyo Co Ltd; JP 11196895 A2 1999 HCAPLUS
(2) Wako Pure Chem Ind Ltd; US 4970152 A 1990 HCAPLUS
(3) Wako Pure Chem Ind Ltd; JP 11178599 A2 1999 HCAPLUS
(4) Yoshida, H; J Biol Chem 1996, V271(23), P13854 HCAPLUS

IT **14127-61-8**, **Calcium** ion, miscellaneous
RL: MSC (Miscellaneous)
(**insect** body fluid **ext**. having
phenoloxidase activity without; **phenoloxidase**-active
insect body fluid **ext**. in compn. and diagnostic kit
for detecting peptidoglycan)

RN 14127-61-8 HCAPLUS
CN Calcium, ion (Ca2+) (8CI, 9CI) (CA INDEX NAME)

Ca^{2+}

IT **9051-97-2**
RL: ARU (Analytical role, unclassified); ANST (Analytical study)

(peptidoglycan detection in presence of; **phenoloxidase**-active **insect** body fluid **ext.** in compn. and diagnostic kit for detecting peptidoglycan)
RN 9051-97-2 HCAPLUS
CN .beta.-D-Glucan, (1.fwdarw.3)- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **9002-10-2P, Phenoloxidase**
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); CAT (Catalyst use); DGN (Diagnostic use); PUR (Purification or recovery); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**phenoloxidase**-active **insect** body fluid **ext**. in compn. and diagnostic kit for detecting peptidoglycan)
RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 2 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:723198 HCAPLUS
DN 138:21232
TI A zymogen form of masquerade-like serine proteinase homologue is cleaved during pro-**phenoloxidase** activation by **Ca2+** in coleopteran and Tenebiro molitor **larvae**
AU **Lee, Kum Young**; Zhang, Rong; Kim, Moon Suk; Park, Ji Won; Park, Ho Young; Kawabata, Shun-ichiro; **Lee, Bok Luel**
CS College of Pharmacy, Pusan National University, Jangjeon Dong, 609-735, S. Korea
SO European Journal of Biochemistry (2002), 269(17), 4375-4383
CODEN: EJBCAI; ISSN: 0014-2956
PB Blackwell Science Ltd.
DT Journal
LA English
CC 7-2 (Enzymes)
Section cross-reference(s): 12
AB To elucidate the biochem. activation mechanism of the **insect** pro-**phenoloxidase** (pro-PO) system, we purified a 45-kDa protein to homogeneity from the hemolymph of Tenebrio molitor (mealworm) **larvae**, and cloned its cDNA. The overall structure of the 45-kDa protein is similar to Drosophila masquerade serine proteinase homolog, which is an essential component in Drosophila muscle development. This Tenebrio masquerade-like serine proteinase homolog (Tm-mas) contains a trypsin-like serine proteinase domain in the C-terminal region, except for the substitution of Ser to Gly at the active site triad, and a disulfide-knotted domain at the amino-terminal region. When the purified 45-kDa Tm-mas was incubated with CM-Toyopearl eluate soln. contg. pro-PO and other pro-PO activating factors, the resulting **phenoloxidase** (PO) activity was shown to be independent of **Ca2+**. This suggests that the purified 45-kDa Tm-mas is an activated form of pro-PO activating factor. The55-kDa zymogen form of Tm-mas was detected in the hemolymph when PO activity was not evident. However, when Tenebrio hemolymph was incubated with **Ca2+**, a 79-kDa Tenebrio pro-PO and the 55-kDa zymogen Tm-mas converted to 76-kDa PO and 45-kDa Tm-mas, resp., with detectable PO activity. Furthermore, when Tenebrio hemolymph was incubated with **Ca2+** and **.beta.-1,3-glucan**, the conversion of pro-PO to PO and the 55-kDa zymogen Tm-mas to the 45-kDa protein, was faster than in the presence of **Ca2+** only. These results suggest that the cleavage of the 55-kDa zymogen of Tm-mas by a limited proteolysis is necessary for PO activity, and the Tm-mas is a pro-PO activating cofactor.
ST sequence cDNA masquerade like proserine proteinase Tenebiro; **prophenoloxidase** activation Tenebiro masquerade like serine

proteinase
IT cDNA sequences
(for zymogen form of masquerade-like serine proteinase homolog from Tenebiro molitor **larvae**)
IT **Blood plasma**
Hemolymph
(of Tenebiro molitor **larvae**, localization of masquerade-like serine proteinase in; zymogen form of masquerade-like serine proteinase homolog is cleaved during pro-**phenoloxidase** activation by **Ca2**+ in coleopteran and Tenebiro molitor **larvae**)
IT Protein sequences
(of zymogen form of masquerade-like serine proteinase homolog from Tenebiro molitor **larvae**)
IT Tenebrio molitor
(zymogen form of masquerade-like serine proteinase homolog is cleaved during pro-**phenoloxidase** activation by **Ca2**+ in coleopteran and Tenebiro molitor **larvae**)
IT 9023-34-1, **Prophenoloxidase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(activation of; zymogen form of masquerade-like serine proteinase homolog is cleaved during pro-**phenoloxidase** activation by **Ca2**+ in coleopteran and Tenebiro molitor **larvae**)
IT 477929-63-8, Proteinase, proserine (Tenebrio molitor)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(amino acid sequence; zymogen form of masquerade-like serine proteinase homolog is cleaved during pro-**phenoloxidase** activation by **Ca2**+ in coleopteran and Tenebiro molitor **larvae**)
IT **9051-97-2 14127-61-8, Ca2**+, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(as cofactor for masquerade-like serine proteinase in pro-**phenoloxidase** activation; zymogen form of masquerade-like serine proteinase homolog is cleaved during pro-**phenoloxidase** activation by **Ca2**+ in coleopteran and Tenebiro molitor **larvae**)
IT 103351-82-2, Proserine proteinase
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(masquerade-like serine proteinase homolog; zymogen form of masquerade-like serine proteinase homolog is cleaved during pro-**phenoloxidase** activation by **Ca2**+ in coleopteran and Tenebiro molitor **larvae**)
IT 453301-10-5, GenBank AB084067
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence; zymogen form of masquerade-like serine proteinase homolog is cleaved during pro-**phenoloxidase** activation by **Ca2**+ in coleopteran and Tenebiro molitor **larvae**)
RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD
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IT **9051-97-2 14127-61-8, Ca2+**, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(as cofactor for masquerade-like serine proteinase in pro-**phenoloxidase** activation; zymogen form of masquerade-like serine proteinase homolog is cleaved during pro-**phenoloxidase** activation by **Ca2+** in coleopteran and Tenebiro molitor **larvae**)

RN 9051-97-2 HCAPLUS
CN .beta.-D-Glucan, (1.fwdarw.3)- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 14127-61-8 HCAPLUS
CN Calcium, ion (Ca2+) (8CI, 9CI) (CA INDEX NAME)

Ca^{2+}

L75 ANSWER 3 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:157830 HCAPLUS
DN 136:212776
TI **Phenol oxidase**-activating protein from Holotrichia diomphalia and its use for diagnosing fungal infections
IN **Lee, Bok Luel; Park, Chong Jin; Hong, Seung-Suh; Lee, Hyun-Soo**
PA **Samyang Genex Corporation, S. Korea**
SO PCT Int. Appl., 37 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C07K014-435
CC 7-3 (Enzymes)
Section cross-reference(s): 3, 12, 14

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002016425	A1	20020228	WO 2001-KR1435	20010824 <--

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US,

UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2001082640 A5 20020304 AU 2001-82640 20010824 <--
PRAI KR 2000-49207 A 20000824 <--
WO 2001-KR1435 W 20010824

AB A Holotrichia diomphalia 45-kDa protein related to **phenol oxidase** activation by **.beta.-1,3-glucan** is isolated and characterized. The nucleotide sequence and encoded amino acid sequence of the 45-kDa protein are provided. The present invention provides a gene coding the 45 kDa protein. The gene has an open reading frame of 1245 bp corresponding to 415 amino acids. The protein according to the present invention is one of the **phenol oxidase** activation factors. The protein of the present invention can be used to prep. the compn. for diagnosing fungal infections. Also the gene according to the present invention can be used in mass-producing the protein necessary to prep. the compn. for diagnosing fungal infections. The protein of the present invention is a component of a compn. for detecting **.beta.-1,3-glucan** derived from **insects** and can be used to reconstitute the same compn.

ST Holotrichia **phenol oxidase** activating protein sequence; fungal infection diagnosis **phenol oxidase** activating protein Holotrichia

IT Gene, animal
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(for **phenol oxidase**-activating protein; **phenol oxidase**-activating protein from Holotrichia diomphalia and its use for diagnosing fungal infections)

IT Diagnosis
(mol.; **phenol oxidase**-activating protein from Holotrichia diomphalia and its use for diagnosing fungal infections)

IT Hemolymph
Holotrichia diomphalia
Mycosis
Post-translational processing
Protein sequences
cDNA sequences
(**phenol oxidase**-activating protein from Holotrichia diomphalia and its use for diagnosing fungal infections)

IT Antibodies
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**phenol oxidase**-activating protein from Holotrichia diomphalia and its use for diagnosing fungal infections)

IT Proteins
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); PUR (Purification or recovery); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(pro-**phenol oxidase**-activating factor; **phenol oxidase**-activating protein from Holotrichia diomphalia and its use for diagnosing fungal infections)

IT 402546-41-2DP, subfragments are claimed 402546-42-3DP, subfragments are claimed
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); PUR (Purification or recovery); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; **phenol oxidase**-activating

protein from Holotrichia diomphalia and its use for diagnosing fungal infections)
IT 402546-39-8D, subfragments are claimed 402546-40-1D, subfragments are claimed
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological study); USES (Uses)
(nucleotide sequence; **phenol oxidase**-activating protein from Holotrichia diomphalia and its use for diagnosing fungal infections)
IT **9051-97-2**
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**phenol oxidase**-activating protein from Holotrichia diomphalia and its use for diagnosing fungal infections)
IT **9002-10-2, Phenol oxidase**
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**phenol oxidase**-activating protein from Holotrichia diomphalia and its use for diagnosing fungal infections)
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Anon; GenBank Accession AJ400903
(2) Anon; GenBank Accession No CAC12665
(3) Kwon; Eur J Biochem 2000, V267(20), P6188 HCAPLUS
(4) Kwon; Molecules and cells 1997, V7(1), P90 HCAPLUS
(5) Lee; Eur J Biochem 1998, V254(1), P50 HCAPLUS
IT **9051-97-2**
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**phenol oxidase**-activating protein from Holotrichia diomphalia and its use for diagnosing fungal infections)
RN 9051-97-2 HCAPLUS
CN .beta.-D-Glucan, (1.fwdarw.3)- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **9002-10-2, Phenol oxidase**
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**phenol oxidase**-activating protein from Holotrichia diomphalia and its use for diagnosing fungal infections)
RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 4 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2001:545535 HCAPLUS
DN 135:104708
TI Composition for detecting **beta-1,3-glucan**, preparation method thereof and diagnostic kit detecting **beta-1,3-glucan**
IN **Auh, Joong Hyuck; Park, Bu Soo; Joo, Chang Hun ; Park, Chong Jin; Lee, Bok Luel; Lee, Kum Young; Hong, Seung-Suh; Lee, Hyun-Soo**
PA **Samyang Genex Corporation, S. Korea**
SO PCT Int. Appl., 39 pp.
CODEN: PIXXD2
DT Patent
LA English
IC A61K049-00; A61K035-64
CC 9-16 (Biochemical Methods)

Section cross-reference(s): 10, 14

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001052905	A1	20010726	WO 2001-KR106	20010120 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1274466	A1	20030115	EP 2001-942566	20010120 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2003520043	T2	20030702	JP 2001-552952	20010120 <--
	US 2002197662	A1	20021226	US 2001-938334	20010823 <--
PRAI	KR 2000-2542	A	20000120 <--		
	WO 2001-KR106	W	20010120 <--		

AB The present invention relates to a compn. for detecting an infinitesimal quantity of **beta-1,3-glucan**, a prepn. method thereof and a diagnostic kit detecting **beta-1,3-glucan**. The compn. of the present invention shows **phenol oxidase** activity by **beta-1,3-glucan** in the presence of **calcium** ions. Using the compn. of the present invention, a sample is gathered from a specimen, the compn. of the present invention and **calcium** ions are added to the sample, and **beta-1,3-glucan** is detected by measuring **phenol oxidase** activity.

ST compn detecting **beta glucan** diagnostic kit

IT Beetle (Coleoptera)
Blood plasma
Buffers
Chelating agents
Composition
Diagnosis
Fungi
Hemocyte
Holotrichia diomphalia
Insect (Insecta)
Liquid chromatography
Microorganism
Mixtures
Neoplasm
Scarabaeidae
Solutions
Solvents
Tenebrio molitor
Tenebrionidae
Test kits
UV and visible spectroscopy
(compn. for detecting **beta-1,3-glucan**, prepn. method thereof and diagnostic kit detecting **beta-1,3-glucan**)

IT Carbohydrates, analysis
Polymers, analysis
RL: ANT (Analyte); ANST (Analytical study)
(compn. for detecting **beta-1,3-glucan**, prepn. method thereof and diagnostic kit detecting **beta-1,3-glucan**)

IT 2669-89-8, Vinyl 9004-54-0, Dextran, analysis **9051-97-2**

RL: ANT (Analyte); ANST (Analytical study)
(compn. for detecting **beta-1,3-glucan**, prepn. method thereof and diagnostic kit detecting **beta-1,3-glucan**)
IT **9002-10-2, Phenol oxidase 14127-61-8**
, **Calcium** ion, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(compn. for detecting **beta-1,3-glucan**, prepn. method thereof and diagnostic kit detecting **beta-1,3-glucan**)
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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(3) Marmaras, V; Arch Insect Biochem Physiol 1996, V31(2), P119 HCAPLUS
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IT **9051-97-2**
RL: ANT (Analyte); ANST (Analytical study)
(compn. for detecting **beta-1,3-glucan**, prepn. method thereof and diagnostic kit detecting **beta-1,3-glucan**)
RN 9051-97-2 HCAPLUS
CN .beta.-D-Glucan, (1.fwdarw.3)- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **9002-10-2, Phenol oxidase 14127-61-8**
, **Calcium** ion, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(compn. for detecting **beta-1,3-glucan**, prepn. method thereof and diagnostic kit detecting **beta-1,3-glucan**)
RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 14127-61-8 HCAPLUS
CN Calcium, ion (Ca2+) (8CI, 9CI) (CA INDEX NAME)

Ca^{2+}

L75 ANSWER 5 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2000:446368 HCAPLUS
DN 133:204367
TI Activated **phenoloxidase** from Tenebrio molitor **larvae** enhances the synthesis of melanin by using a vitellogenin-like protein in the presence of dopamine
AU **Lee, Kwang Moon**; **Lee, Kum Young**; Choi, Hye Won; Cho, Mi Young; Kwon, Tae Hyuk; Kawabata, Shun-Ichiro; **Lee, Bok Luel**
CS College of Pharmacy, Pusan National University, Pusan, 609-735, S. Korea
SO European Journal of Biochemistry (**2000**), 267(12), 3695-3703
CODEN: EJBCAI; ISSN: 0014-2956
PB Blackwell Science Ltd.
DT Journal
LA English
CC 6-3 (General Biochemistry)
Section cross-reference(s): 3, 12
AB One of the biol. functions of activated **phenoloxidase** in arthropods is the synthesis of melanin around invaded foreign materials. However, little is known about how activated **phenoloxidase** synthesizes melanin at the mol. level. Even though it has been suggested

that the quinone derivs. generated by activated **phenoloxidase** might use endogenous protein components for melanin synthesis in arthropods, there is no report of protein components engaged in melanin synthesis induced by activated **phenoloxidase**. In this study, to isolate and characterize proteins involved in melanin synthesis, we prepd. in vitro **prophenoloxidase** activating soln. (designated G-100 soln.), specifically showing **phenoloxidase** activity in the presence of **Ca2**+ and **.beta.-1,3-glucan**, from the hemolymph of **larvae** of the coleopteran Tenebrio molitor by using a Sephadex G-100 column. When G-100 soln. was incubated with dopamine to induce melanin synthesis in the presence of **Ca2**+ and **.beta.-1,3-glucan**, four types of protein (160 kDa, **prophenoloxidase**, **phenoloxidase** and 45 kDa) disappeared from SDS-PAGE under reducing conditions. Under identical conditions, but including phenylthiourea as a **phenoloxidase** inhibitor added to the G-100 soln., three of these proteins (160 kDa, **phenoloxidase** and 45 kDa) did not disappear. To characterize these melanization-engaging proteins, we first purified the 160-kDa melanization-engaging protein to homogeneity and raised a polyclonal antibody against it. Anal. of the cDNA revealed that it consisted of 1439 amino-acid residues and showed partial homol. with Caenorhabditis elegans vitellogenin precursor-6 (19.7%). Western blot anal. showed that it disappeared when active **phenoloxidase** induced melanin synthesis. Furthermore, when the purified 160-kDa melanization-engaging protein was added to a G-100 soln. deficient in it, melanin synthesis was enhanced compared with the same soln. without the protein. These data support the conclusion that the 160-kDa vitellogenin-like protein is involved in arthropod melanin synthesis.

ST Tenebrio cDNA sequence melanization engaging protein 160kDa MEP

IT Proteins, specific or class
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PROC (Process)
(160kDa MEP; identification, cloning, sequence and characterization of a melanization-engaging protein from Tenebrio molitor **larvae**)

IT Protein sequences
Tenebrio molitor
cDNA sequences
(identification, cloning, sequence and characterization of a melanization-engaging protein from Tenebrio molitor **larvae**)

IT Melanins
RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)
(identification, cloning, sequence and characterization of a melanization-engaging protein from Tenebrio molitor **larvae**)

IT 289920-34-9P
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PROC (Process)
(amino acid sequence; identification, cloning, sequence and characterization of a melanization-engaging protein from Tenebrio molitor **larvae**)

IT 280545-53-1, GenBank AB037697
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence; identification, cloning, sequence and characterization of a melanization-engaging protein from Tenebrio molitor **larvae**)

RE.CNT 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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(43) Yano, K; Biochim Biophys Acta 1994, V1218, P1 HCAPLUS

L75 ANSWER 6 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **2000:308251** HCAPLUS
DN **133:71630**
TI Interaction of **hemocytes** and **prophenoloxidase** system of fifth instar nymphs of Acheta domesticus with bacteria
AU Da Silva, Cleonor; Dunphy, Gary B.; Rau, M. E.
CS Centro Nacional de Pesquisa de Recursos Geneticos, e Biotechnologia - Cenargen/EMBRAPA, Centro Nacional de Pesquisa de Recursos Geneticos, e Biotechnologia - Cenargen/EMBRAPA, SAIN Parque Rural, Brasilia, 70770-900, Brazil
SO Developmental & Comparative Immunology (**2000**), 24(4), 367-379
CODEN: DCIMDQ; ISSN: 0145-305X
PB Elsevier Science Ltd.
DT Journal
LA English
CC 12-5 (Nonmammalian Biochemistry)
AB The **hemocytes** to which bacteria adhere were defined and the contribution of the **prophenoloxidase** system of fifth instar nymphs of Acheta domesticus to adhesion were examd. The physicochem.

parameters affecting **hemocyte** and **phenoloxidase** activity were detd. Both plasmatocytes and granular cells responded to bacteria, the latter cells entrapping the microorganisms on filopodial extensions. The optimum pH for **hemocyte** adhesion to glass slides was 6.5, the granular cells being the most sensitive **hemocyte** type. Although hydrophobic resin beads and pos.-charged beads favored **hemocyte** attachment, these parameters did not contribute to differential bacterial adhesion to **hemocytes**. Activation of **phenoloxidase** was neither enhanced nor inhibited by 0.1 and 1 mg/mL of **laminarin** or zymosan nor by dead Bacillus subtilis. However, live B. subtilis activated the enzyme and dead Xenorhabdus nematophilus inhibited enzyme activation. Serine protease components of the **prophenoloxidase** system had opsonic properties for B. subtilis but not for X. nematophilus. **Phenoloxidase** activity was enhanced by **Ca2+** and Mg2+ and inhibited by SO42-.

ST **hemocyte** bacteria adhesion **prophenoloxidase** cricket nymph; Acheta immunity bacteria adhesion **hemocyte**

IT **Hemocyte**
(granular cell; **hemocytes** and **prophenoloxidase** system interaction with bacteria in fifth instar nymphs of Acheta domesticus)

IT Acheta domesticus
Adhesion, biological
Bacillus subtilis
Xenorhabdus nematophilus
(**hemocytes** and **prophenoloxidase** system interaction with bacteria in fifth instar nymphs of Acheta domesticus)

IT Development, nonmammalian postembryonic
(nymph; **hemocytes** and **prophenoloxidase** system interaction with bacteria in fifth instar nymphs of Acheta domesticus)

IT **Hemocyte**
(plasmatocyte; **hemocytes** and **prophenoloxidase** system interaction with bacteria in fifth instar nymphs of Acheta domesticus)

IT 7439-95-4, Magnesium, biological studies **7440-70-2**, **Calcium**, biological studies 14808-79-8, Sulfate, biological studies 37259-58-8, Serine protease
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(**hemocytes** and **prophenoloxidase** system interaction with bacteria in fifth instar nymphs of Acheta domesticus)

IT 9023-34-1, **Prophenoloxidase**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**hemocytes** and **prophenoloxidase** system interaction with bacteria in fifth instar nymphs of Acheta domesticus)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

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IT **7440-70-2, Calcium**, biological studies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(**hemocytes** and **prophenoloxidase** system interaction with bacteria in fifth instar nymphs of Acheta domesticus)
RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

L75 ANSWER 7 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **2000:237594** HCAPLUS
DN **133:101523**
TI Detection of peptidoglycan in human **plasma** using the silkworm **larvae plasma** test
AU Kobayashi, T.; Tani, T.; Yokota, T.; Kodama, M.
CS First Department of Surgery, Shiga University of Medical Science, Seta Tsukinowa, Otsu, Shiga, Japan
SO FEMS Immunology and Medical Microbiology (**2000**), 28(1), 49-53
CODEN: FIMIEV; ISSN: 0928-8244
PB Elsevier Science B.V.
DT Journal
LA English
CC 9-2 (Biochemical Methods)
Section cross-reference(s): 14
AB Silkworm **larvae plasma** (SLP) reagent, which is prepd. from the body fluid of the silkworm, reacts with peptidoglycan (PG), a fragment of both the Gram-pos. and Gram-neg. bacterial cell wall, as well as with .**beta**.-**glucan**, a component of fungi. We developed a quant. method for the detection of PG in human **plasma** from cases with bacterial infection using the SLP reagent. Tested in this way, the SLP method showed 86.2% sensitivity, 90.6% specificity, 89.3% pos. predictive value, and 88.5% efficiency. The SLP method provides a valuable tool for the diagnosis of systemic infection using patients' **blood**.
ST peptidoglycan detn bacterial infection silkworm **larvae plasma** test
IT Reagents
RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(Silkworm **larvae plasma**; detection of peptidoglycan in human **plasma** using silkworm **larvae plasma** test)
IT Infection
(bacterial; detection of peptidoglycan in human **plasma** using silkworm **larvae plasma** test)
IT **Blood analysis**
Escherichia coli
Gram-positive bacteria (Firmicutes)
Staphylococcus aureus
(detection of peptidoglycan in human **plasma** using silkworm **larvae plasma** test)
IT Peptidoglycans
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(detection of peptidoglycan in human **plasma** using silkworm **larvae plasma** test)
IT Silkworm
(**larvae plasma** (SLP); detection of peptidoglycan in human **plasma** using silkworm **larvae plasma**

test)
IT 9041-22-9, **.beta.-Glucan**
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(detection of peptidoglycan in human **plasma** using silkworm **larvae plasma** test)
IT 59-92-7, L-DOPA, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(detection of peptidoglycan in human **plasma** using silkworm **larvae plasma** test)
IT **9002-10-2, Phenol-oxidase**
RL: ARG (Analytical reagent use); BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); PROC (Process); USES (Uses)
(detection of peptidoglycan in human **plasma** using silkworm **larvae plasma** test)
IT 10043-52-4, **Calcium** chloride, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(detection of peptidoglycan in human **plasma** using silkworm **larvae plasma** test)
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
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IT **9002-10-2, Phenol-oxidase**
RL: ARG (Analytical reagent use); BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); PROC (Process); USES (Uses)
(detection of peptidoglycan in human **plasma** using silkworm **larvae plasma** test)
RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 8 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **1999:310838** HCAPLUS
DN **131:126896**
TI Identification, purification and properties of a **.beta.-1,3-glucan**-specific lectin from the **serum** of the cockroach, Blaberus discoidalis which is implicated in immune defence reactions
AU Chen, Changlin; Rowley, Andrew F.; Newton, Russell P.; Ratcliffe, Norman A.

CS Biomedical and Physiological Research Group, School of Biological Sciences, University of Wales Swansea, Swansea, SA2 8PP, UK
SO Comparative Biochemistry and Physiology, Part B: Biochemistry & Molecular Biology (**1999**), 122B(3), 309-319
CODEN: CBPBB8; ISSN: 0305-0491
PB Elsevier Science Inc.
DT Journal
LA English
CC 6-3 (General Biochemistry)
Section cross-reference(s): 12, 15
AB A lectin specific for **laminarin**, a **.beta.-1, 3-glucan**, agglutinating baker's yeast and enhancing **prophenoloxidase** activation by **laminarin**, has been purified from the cockroach, Blaberus discoidalis, **serum**. Purifn. involved gel filtration with Bio-gel P300 and affinity chromatog. on blue Sepharose CL-6B and **laminarin**-Sepharose 4B. The purified lectin has a mol. mass est. of 520 kDa detd. by gel filtration, and approx. 80 and 82 kDa by SDS-PAGE, under non-reducing and reducing conditions, resp. After isoelec. focusing the lectin focused as a single band at pH 4.9. The purified lectin was stained by the periodic acid/Schiff's reagent showing that it is a glycoprotein, and was deglycosylated by endo-.beta.-N-acetylglucosaminidase F. Amino acid compn. anal. showed the protein is similar to previously purified . **beta.-1,3-glucan** binding proteins from other invertebrates. In electron micrographs by neg. staining, the protein formed large aggregates with "Y"-shaped "structural units" **ca**. 79 .times. 65 nm. Immunol. tests confirmed that this lectin is not related to any other lectins previously purified from the same **insect**. This protein appears to be part of the hexamerin family of proteins. This is one of the first reports of a hexamerin-like mol. with lectin activity.
ST Blaberus **serum laminarin** lectin immunity
IT Protein sequences
(N-terminal; identification, purifn. and properties of **.beta.-1,3-glucan**-specific lectin from **serum** of cockroach, Blaberus discoidalis which is implicated in immune defense reactions)
IT Blabera discoidalis
Blood serum
Hemocyte
Immunity
(identification, purifn. and properties of **.beta.-1,3-glucan**-specific lectin from **serum** of cockroach, Blaberus discoidalis which is implicated in immune defense reactions)
IT Agglutinins and Lectins
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); PROC (Process)
(identification, purifn. and properties of **.beta.-1,3-glucan**-specific lectin from **serum** of cockroach, Blaberus discoidalis which is implicated in immune defense reactions)
IT Amino acids, biological studies
Carbohydrates, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(identification, purifn. and properties of **.beta.-1,3-glucan**-specific lectin from **serum** of cockroach, Blaberus discoidalis which is implicated in immune defense reactions)
IT **9002-10-2, Phenoloxidase 9008-22-4,**

Laminarin 9051-97-2
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(identification, purifn. and properties of **.beta.-1,3-glucan**-specific lectin from **serum** of cockroach, Blaberus discoidalis which is implicated in immune defense reactions)

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IT **9002-10-2, Phenoloxidase 9008-22-4, Laminarin 9051-97-2**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(identification, purifn. and properties of **.beta.-1,3-glucan**-specific lectin from **serum** of cockroach, Blaberus discoidalis which is implicated in immune defense reactions)

RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9008-22-4 HCAPLUS
CN Laminaran (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9051-97-2 HCAPLUS
CN .beta.-D-Glucan, (1.fwdarw.3)- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 9 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 1998:733179 HCAPLUS
DN 130:91122
TI Molecular cloning of cDNA for pro-**phenol-oxidase**-activating factor I, a serine protease is induced by lipopolysaccharide or **1,3-.beta.-glucan** in coleopteran **insect**, Holotrichia diomphalia **larvae**
AU Lee, So Young; Cho, Mi Young; Hyun, Ji Hoon; **Lee, Kwang Moon**; Homma, Ko-ichi; Natori, Shunji; Kawabata, Shun-ichiro; Iwanaga, Sadaaki; **Lee, Bok Luel**
CS College of Pharmacy, Pusan National University, Jangjeon Dong, Kumjeong Ku, Pusan, S. Korea
SO European Journal of Biochemistry (**1998**), 257(3), 615-621
CODEN: EJBCAI; ISSN: 0014-2956
PB Springer-Verlag
DT Journal
LA English
CC 3-3 (Biochemical Genetics)
Section cross-reference(s): 7, 12
AB Previously, the authors identified two pro-**phenol oxidase**-activating factors, named PPAF-I and PPAF-II, directly involved in the activation of the purified pro-**phenol oxidase** (pro-PO) from the hemolymph of the coleopteran, Holotrichia diomphalia **larvae** [Lee, S.Y., Kwon, T.H., Hyun, J.H., Choi, J.S., Kawabata, S.I., Iwanga, S, & Lee, B.L. (1998) Eul: J.Biochem. 254, 90-97]. Here, the authors report mol. cloning of cDNA for PPAF-I. Based on the sequence of the cloned cDNA, the PPAF-I gene appears to encode a member of serine protease zymogen consisting of 365 amino acid residues with a mol. mass of 40193 Da. The 109 amino acid residues preceding the amino-terminus Ile residue of the mature protein seem to constitute a prepro-sequence. The mature protein is a serine protease composed of 256 amino acids with a calcd. mol. mass of 28009 Da. The overall structure is highly similar to that of Drosophila easter serine protease (42.9% identity), an essential serine protease zymogen for pattern formation in normal embryonic development. The locations of disulfide linkages in the pro-segment of PPAF-I were similar to those of Tachypleus proclotting enzyme and the mammalian neutrophil-derived defensin. Furthermore, ['H]diisopropylphosphate (iPr2P)-labeled PPAF-I was specifically produced from the crude prepn. of PPAF-I zymogen by incubation with lipopolysaccharide or 1,3-f/-**glucan**, whereas ['H]iPr2P-labeled PPAF-I was not produced under the same conditions in the absence of these microbial polysaccharides. These results indicate that the pro-PO-activation system in H. diomphalia **larvae** may proceed with the activation of PPAF-I zymogen by microbial polysaccharides.
ST Holotrichia sequence cDNA PPAFI zymogen activation; serine proteinase activation polysaccharide Holotrichia sequence; disulfide bond Holotrichia sequence cDNA PPAFI
IT Zymogens
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(PPAF-I zymogen activation by microbial polysaccharides; mol. cloning of cDNA for pro-**phenol-oxidase**-activating factor I and activation)
IT Gene, animal

RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(PPAF-I; mol. cloning of cDNA for pro-**phenol-oxidase**-activating factor I and activation)

IT Enzyme functional sites
(active, alignment of; mol. cloning of cDNA for pro-**phenol-oxidase**-activating factor I and activation)

IT Holotrichia diomphalia
Larva
Protein sequences
cDNA sequences
(mol. cloning of cDNA for pro-**phenol-oxidase**-activating factor I and activation)

IT Lipopolysaccharides
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(mol. cloning of cDNA for pro-**phenol-oxidase**-activating factor I and activation)

IT Disulfide group
(present within pro-segment; mol. cloning of cDNA for pro-**phenol-oxidase**-activating factor I and activation)

IT Immunity
(protein utility in **insect** immunity; mol. cloning of cDNA for pro-**phenol-oxidase**-activating factor I and activation)

IT 37259-58-8, Serine protease
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(Pro-**phenol-oxidase**-activating factor I; mol. cloning of cDNA for pro-**phenol-oxidase**-activating factor I and activation)

IT 219523-93-0
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(amino acid sequence of mature; mol. cloning of cDNA for pro-**phenol-oxidase**-activating factor I and activation)

IT 219523-90-7
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(amino acid sequence; mol. cloning of cDNA for pro-**phenol-oxidase**-activating factor I and activation)

IT **9051-97-2, 1,3-.beta.-Glucan**
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(mol. cloning of cDNA for pro-**phenol-oxidase**-activating factor I and activation)

IT 219549-20-9
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(nucleotide sequence; mol. cloning of cDNA for pro-**phenol-oxidase**-activating factor I and activation)

RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD

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IT **9051-97-2, 1,3-.beta.-Glucan**
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(mol. cloning of cDNA for pro-**phenol-oxidase** -activating factor I and activation)

RN 9051-97-2 HCAPLUS
CN .beta.-D-Glucan, (1.fwdarw.3)- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 10 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **1998:592833** HCAPLUS
DN **129:287206**
TI Ascidian **phenoloxidase**: its release from **hemocytes**, isolation, characterization and physiological roles
AU Hata, Shino; Azumi, Kaoru; Yokosawa, Hideyoshi
CS Department of Biochemistry, Faculty of Pharmaceutical Sciences, Hokkaido University, Sapporo, 060, Japan
SO Comparative Biochemistry and Physiology, Part B: Biochemistry & Molecular Biology (**1998**), 119B(4), 769-776
CODEN: CBPBB8; ISSN: 0305-0491
PB Elsevier Science Inc.
DT Journal
LA English
CC 7-2 (Enzymes)
Section cross-reference(s): 12
AB **Hemocytes** of the solitary ascidian Halocynthia roretzi released **phenoloxidase** in response to sheep red **blood** cells and yeast cells but not to latex beads. **Phenoloxidase** was also released from the **hemocytes** by treatments with zymosan and lipopolysaccharides but not with **.beta.1-3 glucan**. EDTA scarcely inhibited the activity of

phenoloxidase but inhibited the release of the enzyme. **Phenoloxidase** was purified from H. roretzi **hemocytes** by SP-Sephadex chromatog. and Sephadex G-100 gel filtration. The mol. wt. of the purified enzyme was estd. to be 62000. **Phenoloxidase** activity was strongly inhibited by diethyldithiocarbamate, phenylthiourea and reducing agents. H. roretzi **phenoloxidase** was characterized as a metalloenzyme that required copper ions for the expression of full activity. The **phenoloxidase** showed antibacterial activity in the presence of L-(3,4-dihydroxy)-phenylalanine and H. roretzi **plasma**. Thus, it can be concluded that **phenoloxidase** released from H. roretzi **hemocytes** functions as a humoral factor in the defense system of H. roretzi.

ST **phenoloxidase hemocyte** defense system ascidian

IT Immunity
(humoral; release from **hemocytes**, isolation, and characterization of ascidian **phenoloxidase** in relation to humoral defense system)

IT Antibacterial agents
Halocynthia roretzi
Hemocyte
Xenobiotics
(release from **hemocytes**, isolation, and characterization of ascidian **phenoloxidase** in relation to humoral defense system)

IT 59-92-7, L-Dopa, biological studies
RL: ADV (Adverse effect, including toxicity); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(release from **hemocytes**, isolation, and characterization of ascidian **phenoloxidase** in relation to humoral defense system)

IT **9002-10-2P, Phenoloxidase**
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); PROC (Process)
(release from **hemocytes**, isolation, and characterization of ascidian **phenoloxidase** in relation to humoral defense system)

IT 7440-50-8, Copper, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(release from **hemocytes**, isolation, and characterization of ascidian **phenoloxidase** in relation to humoral defense system)

IT **7440-70-2, Calcium**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(release from **hemocytes**, isolation, and characterization of ascidian **phenoloxidase** in relation to humoral defense system)

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD

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IT **9002-10-2P**, **Phenoloxidase**
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); PROC (Process)
(release from **hemocytes**, isolation, and characterization of ascidian **phenoloxidase** in relation to humoral defense system)
RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **7440-70-2**, **Calcium**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(release from **hemocytes**, isolation, and characterization of ascidian **phenoloxidase** in relation to humoral defense system)
RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

L75 ANSWER 11 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **1998:75443** HCAPLUS
DN **128:190555**
TI **Phenoloxidase** activity of **hemocytes** derived from Penaeus monodon and Macrobrachium rosenbergii
AU Sung, Hung-Hung; Chang, Hung-Jun; Her, Cheng-Hao; Chang, Jen-Chang; Song, Yen-Ling
CS Department of Microbiology, Soochow University, Taipei, Taiwan
SO Journal of Invertebrate Pathology (**1998**), 71(1), 26-33
CODEN: JIVPAZ; ISSN: 0022-2011
PB Academic Press
DT Journal
LA English
CC 12-1 (Nonmammalian Biochemistry)
Section cross-reference(s): 7
AB The **phenoloxidase** (PO) activity of **hemocyte lysate** supernatant (HLS) from both tiger shrimp (P. monodon) and giant freshwater prawn (M. rosenbergii) was examd. by treating HLS with various factors, such as an increase in temps. from 25 to 70.degree., 1 of 4 elicitors (.**beta.-1,3**-1,6-**glucan**, zymosan, heat-killed Vibrio cells, and lipopolysaccharide), trypsin, 1 of 3 protease inhibitors (soybean trypsin inhibitor, p-nitrophenyl-p'-guanidino-benzoate, and benzamidine), and 1 of 2 divalent cations (Mg2+ and **Ca2**+). The strongest PO activity in both animals was induced at 37.degree., while enzyme activity varied according to the concn. of the elicitors or cations added to the HLS samples. The following optimum concns. were recorded: lipopolysaccharides at 0.5 mg/mL, both .**beta.-glucan** and zymosan at 1 mg/mL, and Vibrio cells at 106 cells/mL. In addn., for giant freshwater prawn, PO activity

increased when HLS was treated with trypsin and decreased when it was **sep**. treated with 3 protease inhibitors. However, effects of either trypsin or protease inhibitors did not occur in tiger shrimp. Strongest PO activity occurred in HLS treated with 20 mM of either **Ca2**+ or Mg2+, and the addn. of the 2 cations led to an increase in enzyme activity; a decrease was noted following the treatment with EDTA. Cytochem. anal. revealed that **prophenoloxidase** system exists in the granulocytes of both tiger shrimp and giant freshwater prawn.

ST **phenoloxidase hemocyte** shrimp prawn

IT Cations
(divalent; **phenoloxidase** of **hemocytes** derived from tiger shrimp and giant freshwater prawn)

IT **Hemocyte**
Macrobrachium rosenbergii
Penaeus monodon
Temperature
Vibrio
(**phenoloxidase** of **hemocytes** derived from tiger shrimp and giant freshwater prawn)

IT Lipopolysaccharides
Zymosans
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(**phenoloxidase** of **hemocytes** derived from tiger shrimp and giant freshwater prawn)

IT **9002-10-2, Phenoloxidase**
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(**phenoloxidase** of **hemocytes** derived from tiger shrimp and giant freshwater prawn)

IT 618-39-3, Benzamidine 7439-95-4, Magnesium, biological studies **7440-70-2, Calcium**, biological studies 9002-07-7, Trypsin 9041-22-9, **.beta.-Glucan** 9078-38-0, Soybean trypsin inhibitor 21658-26-4
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(**phenoloxidase** of **hemocytes** derived from tiger shrimp and giant freshwater prawn)

RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD

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IT **9002-10-2, Phenoloxidase**
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(**phenoloxidase** of **hemocytes** derived from tiger shrimp and giant freshwater prawn)
RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **7440-70-2, Calcium**, biological studies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(**phenoloxidase** of **hemocytes** derived from tiger shrimp and giant freshwater prawn)
RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

L75 ANSWER 12 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **1997:789515** HCAPLUS
DN **128:59670**
TI The **prophenoloxidase** activating system of the shrimp Penaeus paulensis and associated factors
AU Perazzolo, Luciane M.; Barracco, Margherita A.
CS Department of Cell Biology, Embryology and Genetics, Federal University of Santa Catarina, Florianopolis, 88.040-900, Brazil
SO Developmental and Comparative Immunology (**1997**), 21(5), 385-395
CODEN: DCIMDQ; ISSN: 0145-305X
PB Elsevier Science Ltd.
DT Journal
LA English
CC 12-6 (Nonmammalian Biochemistry)
Section cross-reference(s): 15
AB We investigated the proPO activating system of the penaeid P. paulensis, focusing on its role in the shrimp immune system. The great majority of PO activity (>90%) was found in shrimp **hemocytes**. The enzyme activity was greatly enhanced by components of microorganism cell walls, such as lipopolysaccharide (LPS) and .**beta**.-**1**, **3**-**glucans**, suggesting its involvement in non-self recognition. PO activity was also found in the shrimp **serum** and trypsin, and LPS were able to increase the enzyme activity. Thus, **serum** can be used as an alternative for the study of the shrimp

proPO activating system, as it is much more readily obtained than **hemocyte lysate** supernatant (HLS). PO activity was cation dependent, and 5 mM of **calcium** and 10 mM of magnesium were the optimal concns. for the enzyme activity. An immune factor was found in the shrimp HLS, capable of inducing cell-adhesion and degranulation of the penaeid **hemocytes**.

ST **prophenoloxidase** activating system **hemocyte** hemolymph crustacean

IT Lipopolysaccharides
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(bacterial; **prophenoloxidase** activating system of shrimp **hemocyte** and hemolymph and assocd. factors)

IT **Blood serum**
Cations
Cell adhesion
Hemocyte
Hemolymph
Penaeus paulensis
(**prophenoloxidase** activating system of shrimp **hemocyte** and hemolymph and assocd. factors)

IT 9002-07-7, Trypsin **9002-10-2, Phenoloxidase**
9023-34-1, **Prophenoloxidase**
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**prophenoloxidase** activating system of shrimp **hemocyte** and hemolymph and assocd. factors)

IT 7439-95-4, Magnesium, biological studies **7440-70-2, Calcium**, biological studies **9008-22-4, Laminarin**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(**prophenoloxidase** activating system of shrimp **hemocyte** and hemolymph and assocd. factors)

IT **9002-10-2, Phenoloxidase**
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**prophenoloxidase** activating system of shrimp **hemocyte** and hemolymph and assocd. factors)

RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **7440-70-2, Calcium**, biological studies **9008-22-4, Laminarin**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(**prophenoloxidase** activating system of shrimp **hemocyte** and hemolymph and assocd. factors)

RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

RN 9008-22-4 HCAPLUS
CN Laminaran (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 13 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN

AN **1997:521501** HCAPLUS
DN **127:147323**
TI Activation of **prophenoloxidase** in the **plasma** and **hemocytes** of the marine mussel Perna viridis linnaeus
AU Asokan, Rengasamy; Arumugam, Munusamy; Mullainadhan, Periasamy
CS Laboratory of Pathobiology, Department of Zoology, University of Madras, Madras, 600 025, India
SO Developmental and Comparative Immunology (**1997**), 21(1), 1-12
CODEN: DCIMDQ; ISSN: 0145-305X
PB Elsevier
DT Journal
LA English
CC 12-6 (Nonmammalian Biochemistry)
Section cross-reference(s): 4
AB **Phenoloxidase** activity was detected in **plasma** and **hemocytes** of the marine mussel Perna viridis. This enzyme exists as a proenzyme, **prophenoloxidase** (proPO), in both these haemolymph fractions and could be activated in vitro by exogenous proteases (trypsin and .alpha.-chymotrypsin) and a detergent (SDS). In addn., **laminarin** (a polymer of **.beta.-1, 3 glucan**) and bacterial lipopolysaccharides (LPSs) effectively triggered proPO activation in these haemolymph fractions. The activation of proPO by non-self mols. was dependent upon **calcium** ions at a low concn. This activation process appeared to involve a limited proteolysis, since serine protease inhibitors (soybean trypsin inhibitor, benzamidine or p-nitrophenyl-p'-guanidinobenzoate) suppressed conversion of proPO to the active enzyme. This study demonstrates the selective response of **plasma** and **hemocytic** proPO to activation by different types of bacterial LPS tested and suggests that proPO system in both **plasma** and **hemocytes** of P. viridis serves an important function in non-self recognition and host immune reactions.
ST **prophenoloxidase plasma hemocyte** mussel lipopolysaccharide **laminarin**
IT **Blood plasma**
Hemocyte
Perna viridis
(activation of **prophenoloxidase** in **plasma** and **hemocytes** of a marine mussel)
IT Lipopolysaccharides
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(activation of **prophenoloxidase** in **plasma** and **hemocytes** of a marine mussel)
IT **7440-70-2, Calcium**, biological studies **9008-22-4, Laminarin**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(activation of **prophenoloxidase** in **plasma** and **hemocytes** of a marine mussel)
IT 9023-34-1, **Prophenoloxidase**
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(activation of **prophenoloxidase** in **plasma** and **hemocytes** of a marine mussel)
IT **9002-10-2, Phenoloxidase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(activation of **prophenoloxidase** in **plasma** and **hemocytes** of a marine mussel)
IT **7440-70-2, Calcium**, biological studies **9008-22-4, Laminarin**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological

study, unclassified); BIOL (Biological study)
(activation of **prophenoloxidase** in **plasma** and **hemocytes** of a marine mussel)
RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

RN 9008-22-4 HCAPLUS
CN Laminaran (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **9002-10-2, Phenoloxidase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(activation of **prophenoloxidase** in **plasma** and **hemocytes** of a marine mussel)
RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 14 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **1997:288339** HCAPLUS
DN **127:14763**
TI Effect of **calcium** on the **prophenoloxidase** system activation of the brown shrimp (Penaeus californiensis, Holmes)
AU Gollas-Galvan, Teresa; Hernandez-Lopez, Jorge; Vargas-Albores, Francisco
CS CIBNOR, La Paz, 23000, Mex.
SO Comparative Biochemistry and Physiology, A: Physiology (**1997**), 117A(3), 419-425
CODEN: CBPAB5; ISSN: 0300-9629
PB Elsevier
DT Journal
LA English
CC 7-3 (Enzymes)
Section cross-reference(s): 12
AB The sol. **prophenoloxidase** (proPO) system of the brown shrimp (P. californiensis) was obtained by centrifuging **hemocytes** (15,000 g) in low salt buffers. In these samples, proPO spontaneous activation was obsd. when **Ca2**+ (>5 mM) was present in the buffers. Stable samples can be obtained in divalent cation-free buffer, and the sole addn. of **Ca2**+ resulted in the proPO activation. In contrast, **Ca2**+ was not able to induce spontaneous activation in samples depleted of proPO activating enzyme (PPAE) obtained by passing the sample through a Blue Sepharose column. In addn., protease inhibitors like melittin and soybean trypsin inhibitor blocked the **Ca2**+-induced spontaneous activation, indicating this cation is required for the proPO proteolytic activation. Although **Ca2**+-induced spontaneous activation was not obsd. with intact **hemocytes**, this cation was necessary for the activation of proPO by **.beta.-glucans**. **Plasma Ca2**+ concn. of the brown shrimp is 8 mM, as detd. by absorption spectroscopy. Thus, these results suggest **Ca2**+ activates PPAE and then PPAE transforms proPO to an active form when both proteins are released from the cells after the stimulus.
ST **calcium prophenoloxidase** system activation shrimp
IT **Hemocyte**
Penaeus californiensis
(**calcium** effect on **prophenoloxidase** system activation in brown shrimp)
IT Proteins, general, biological studies
RL: BAC (Biological activity or effector, except adverse); BPR (Biological

process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**calcium** effect on **prophenoloxidase** system activation in brown shrimp)

IT 131281-53-3, **Prophenoloxidase**-activating enzyme
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**calcium** effect on **prophenoloxidase** system activation in brown shrimp)

IT **7440-70-2, Calcium**, biological studies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(**calcium** effect on **prophenoloxidase** system activation in brown shrimp)

IT **9002-10-2, Phenoloxidase**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)
(**calcium** effect on **prophenoloxidase** system activation in brown shrimp)

IT 9023-34-1, **Prophenoloxidase**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**calcium** effect on **prophenoloxidase** system activation in brown shrimp)

IT **7440-70-2, Calcium**, biological studies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(**calcium** effect on **prophenoloxidase** system activation in brown shrimp)

RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

IT **9002-10-2, Phenoloxidase**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)
(**calcium** effect on **prophenoloxidase** system activation in brown shrimp)

RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 15 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **1996:243560** HCAPLUS
DN **124:284853**
TI ProPO system of Allogamus auricollis (**Insecta**): effects of various compounds on **phenoloxidase** activity
AU Brivio, Maurizio F.; Mazzei, Claudio; Scari, Giorgio
CS III.degree. Fac. Sci., Univ. Milan, Varese, 21100, Italy
SO Comparative Biochemistry and Physiology, B: Biochemistry and Molecular Biology (**1996**), 113B(2), 281-7
CODEN: CBPBB8; ISSN: 0305-0491
PB Elsevier
DT Journal
LA English
CC 12-6 (Nonmammalian Biochemistry)

AB The **phenoloxidase** activity in the hemolymph cell-free fraction from Allogamus auricollis was studied in the presence of Escherichia coli lipopolysaccharides and Saccharomyces cerevisiae **.beta.-1,3-glucans**. The proPO system seems to be strongly activated by lipopolysaccharides (LPS). The basic activation obsd. in this model appears not to be affected by the use of protease inhibitors (.alpha.2 macroglobulin, soybean trypsin inhibitor), and, in addn., the LPS-activated proPO system is not inhibited by their presence. **Calcium** ions at high concns. inhibit the **phenoloxidase** activity, and EDTA **chelation** strongly enhances dopachrome formation. Anal. polyacrylamide gel electrophoresis (PAGE) of the hemolymph cell-free fraction showed two main components, with a mol. mass of 76 and 80 kDa. After electro-elution from a native PAGE of L-dihydroxyphenylalanine pos. bands, the anal. SDS-PAGE again showed the same two major bands.

ST **prophenoloxidase** system hemolymph Caddis fly

IT Lipopolysaccharides
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(E. coli; **prophenoloxidase** activating cascade of hemolymph of Caddis fly and effects of various compds. on **phenoloxidase** activity)

IT Zymosans
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(Saccharomyces cerevisiae; **prophenoloxidase** activating cascade of hemolymph of Caddis fly and effects of various compds. on **phenoloxidase** activity)

IT Allogamus auricollis
Hemolymph
(**prophenoloxidase** activating cascade of hemolymph of Caddis fly and effects of various compds. on **phenoloxidase** activity)

IT Proteins, specific or class
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(76,000-mol.-wt., proteins of **prophenoloxidase** system in hemolymph of Caddis fly)

IT Proteins, specific or class
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(80,000-mol.-wt., proteins of **prophenoloxidase** system in hemolymph of Caddis fly)

IT **7440-70-2, Calcium**, biological studies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(**prophenoloxidase** activating cascade of hemolymph of Caddis fly and effects of various compds. on **phenoloxidase** activity)

IT **9002-10-2, Phenoloxidase**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**prophenoloxidase** activating cascade of hemolymph of Caddis fly and effects of various compds. on **phenoloxidase** activity)

IT **7440-70-2, Calcium**, biological studies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(**prophenoloxidase** activating cascade of hemolymph of Caddis fly and effects of various compds. on **phenoloxidase** activity)

RN 7440-70-2 HCAPLUS

CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

IT **9002-10-2, Phenoloxidase**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**prophenoloxidase** activating cascade of hemolymph of Caddis fly and effects of various compds. on **phenoloxidase** activity)
RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 16 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **1995:589145** HCAPLUS
DN **123:6065**
TI **Prophenoloxidase** activating system in the coelomic fluid of the redworm, Lumbricus rubellus
AU Bahk, Yun-Kyung; Son, Young-Jong; Cho, Eun-Jeong; Paik, Seung R.; Kim, Yu-Sam; Suh, Jung-Jin; Chang, Chung-Soon
CS Coll. Sci., Inha Univ., Inchon, 402-751, S. Korea
SO Tongmul Hakhoechi (**1995**), 38(1), 125-35
CODEN: TOHJAV; ISSN: 0440-2510
PB Zoological Society of Korea
DT Journal
LA Korean
CC 12-6 (Nonmammalian Biochemistry)
Section cross-reference(s): 15
AB **Prophenoloxidase**-activating system was found and studied from the coelomic fluid of L. rubellus. The **prophenoloxidase** was converted to an active form by treatment of several activators such as exogenous trypsin, **.beta.-1,3-glucan**, **Ca2+**, lipopolysaccharide (LPS), and heat. The conversions were more effective in the presence of **Ca2+**. The converted **phenoloxidase** activity was continuously increased as concns. of LPS and **Ca2+** raised to 1.5 .times. 10-9 g/mL and 15 mM, resp. The enzyme exhibited its max. activity at the concns. and decreased thereafter. The activators, however, were not effective in the presence of soybean trypsin inhibitor (STI). This fact indicates that the activators might influence a trypsin-like enzyme or serine protease which has been suspected to be involved in the **prophenoloxidase**-activating system. In addn., heat treatment of the coelomic fluid at 50.degree. for 20 min. was a very efficient phys. factor for the activation. This may suggest that **prophenoloxidase** activation by the heat could have an entirely different mechanism compare to the activations by serine protease(s). Some other properties of the activators and the serine protease also have been described in terms of their involvements in the activation.
ST **prophenoloxidase** activating system coelomic fluid worm
IT Lumbricus rubellus
(**prophenoloxidase**-activating system in coelomic fluid of redworm)
IT Lipopolysaccharides
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(**prophenoloxidase**-activating system in coelomic fluid of redworm)
IT Body fluid
(coelomic, **prophenoloxidase**-activating system in coelomic fluid of redworm)
IT Temperature effects, biological
(heat, **prophenoloxidase**-activating system in coelomic fluid of redworm)
IT **7440-70-2, Calcium**, biological studies **9051-97-2**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological

study, unclassified); BIOL (Biological study)
(**prophenoloxidase**-activating system in coelomic fluid of redworm)

IT 9002-07-7, Trypsin **9002-10-2, Phenoloxidase**
9023-34-1, **Prophenoloxidase** 37259-58-8, Serine protease
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**prophenoloxidase**-activating system in coelomic fluid of redworm)

IT **7440-70-2, Calcium**, biological studies **9051-97-2**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(**prophenoloxidase**-activating system in coelomic fluid of redworm)

RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

RN 9051-97-2 HCAPLUS
CN .beta.-D-Glucan, (1.fwdarw.3)- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **9002-10-2, Phenoloxidase**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**prophenoloxidase**-activating system in coelomic fluid of redworm)

RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 17 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **1995:405736** HCAPLUS
DN **122:156740**
TI **Phenoloxidase** and its zymogen from the hemolymph of **larvae** of the lepidopteran Spodoptera littoralis (Lepidoptera: Noctuidae)
AU Lee, Michael J.; Anstee, John H.
CS Dep. Biol. Sci., Univ. Durham, Durham, DH1 3LE, UK
SO Comparative Biochemistry and Physiology, B: Biochemistry and Molecular Biology (**1995**), 110B(2), 379-84
CODEN: CBPBB8; ISSN: 0305-0491
PB Elsevier
DT Journal
LA English
CC 12-3 (Nonmammalian Biochemistry)
Section cross-reference(s): 7
AB Hemolymph **serum phenoloxidase** from **larvae** of the noctuid moth Spodoptera littoralis is present as an inactive proenzyme, **prophenoloxidase**. Partially purified **serum prophenoloxidase** was activated by methanol, but not by **laminarin**, lipopolysaccharides, bovine trypsin or chymotrypsin. **Phenoloxidase** activity was optimal between pH 7.0 and 7.5 for the oxidn. of L-DOPA, with an apparent Km of 1.35 mM for this substrate. Both Mg2+ and **Ca2+** stimulated **phenoloxidase** activity compared with controls and maximal stimulation was obsd. at about 30 mM for both **ions**. EDTA had little effect on activity even at high concns. **Phenoloxidase** activity was inhibited by dithiothreitol (50% inhibition at 20 .mu.M) and kojic acid (50% inhibition at 135 .mu.M,

inhibition const. of 69 .mu.M).
ST **phenoloxidase prophenoloxidase** hemolymph **larva** lepidopteran
IT Hemolymph
Prodenia litura
(**phenoloxidase** and zymogen from hemolymph of **larvae** of Spodoptera littoralis)
IT Development, nonmammalian
(**larval, phenoloxidase** and zymogen from hemolymph of **larvae** of Spodoptera littoralis)
IT **9002-10-2, Phenoloxidase** 9023-34-1, **Prophenoloxidase**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(**phenoloxidase** and zymogen from hemolymph of **larvae** of Spodoptera littoralis)
IT 7439-95-4, Magnesium, biological studies **7440-70-2, Calcium**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**phenoloxidase** and zymogen from hemolymph of **larvae** of Spodoptera littoralis)
IT 59-92-7, L DOPA, biological studies 67-56-1, Methanol, biological studies 501-30-4, Kojic acid 3483-12-3, Dithiothreitol
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(**phenoloxidase** and zymogen from hemolymph of **larvae** of Spodoptera littoralis)
IT **9002-10-2, Phenoloxidase**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(**phenoloxidase** and zymogen from hemolymph of **larvae** of Spodoptera littoralis)
RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **7440-70-2, Calcium**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**phenoloxidase** and zymogen from hemolymph of **larvae** of Spodoptera littoralis)
RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

L75 ANSWER 18 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **1994:551794** HCAPLUS
DN **121:151794**
TI Investigations on the **phenoloxidase** of Rhapidostreptus virgator (Arthropoda, Diplopoda)
AU Xylander, Willi E. R.; Bogusch, Olaf
CS Inst. Allg. Spez. Zool., Justus-Liebig-Univ., Giessen, W-6300/1, Germany
SO Zoologische Jahrbuecher, Abteilung fuer Allgemeine Zoologie und Physiologie der Tiere (**1992**), 96(3), 309-21
CODEN: ZJZPAY; ISSN: 0044-5185
DT Journal
LA English
CC 7-2 (Enzymes)

AB The **phenoloxidase** (I) of diplopod Rhapidostreptus virgator was investigated in vitro concerning its activity, substrates, activators, and inhibitors using photometric techniques. I is of **tyrosinase** -type and occurs in the hemolymph as a proenzyme, **prophenoloxidase** ; it can be activated by different substances. EtOH (II), MeOH, and .alpha.-chymotrypsin (III) proved to be good activators; bacterial lipopolysaccharides and zymosan showed lower, **laminarin** and Na-oleic acid no activating effects. In contrast to that of III, the activation effect of II is not due to protein cleavage as indicated by elongation of incubation time and polyacrylamide-gel electrophoresis. I is **Ca** dependent as shown by the activity decline after application of EDTA and EGTA. L-DOPA is a suitable substrate whereas dopamine, pyrogallol, pyrocatechol and norephedrine are used at much lower rates or not at all (tyrosine).
ST **phenoloxidase** Rhapidostreptus
IT Rhapidostreptus virgator
(**phenoloxidase** of, substrate specificity and other properties of, activators of **prophenoloxidase** in relation to)
IT 9023-34-1, Pro-**phenoloxidase**
RL: PROC (Process)
(of Rhapidostreptus virgator, activation of)
IT **9002-10-2, Phenoloxidase**
RL: BIOL (Biological study)
(of Rhapidostreptus virgator, substrate specificity and other catalytic properties of)
IT 9004-07-3, Chymotrypsin
RL: BIOL (Biological study)
(**prophenoloxidase** of Rhapidostreptus virgator activation by)
IT 64-17-5, Ethanol, properties 67-56-1, Methanol, properties
RL: PRP (Properties)
(**prophenoloxidase** of Rhapidostreptus virgator activation by)
IT 59-92-7, L-Dopa, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with **phenoloxidase** of Rhapidostreptus virgator)
IT **9002-10-2, Phenoloxidase**
RL: BIOL (Biological study)
(of Rhapidostreptus virgator, substrate specificity and other catalytic properties of)
RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 19 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **1993:445528** HCAPLUS
DN **119:45528**
TI In vitro **phenoloxidase** activity in the **blood** of Ciona intestinalis and other ascidians
AU Jackson, Alan D.; Smith, Valerie J.; Peddie, Clare M.
CS Gatty Mar. Lab., Univ. St. Andrews, St. Andrews/Fife, KY16 8LB, UK
SO Developmental & Comparative Immunology (**1993**), 17(2), 97-108
CODEN: DCIMDQ; ISSN: 0145-305X
DT Journal
LA English
CC 12-1 (Nonmammalian Biochemistry)
AB The presence and activation of **phenoloxidase** in the **blood** of C. intestinalis and other ascidians was investigated in vitro. In C. intestinalis, **phenoloxidase** was found to exist in the cells as a proenzyme and to be activated by protease. The microbial carbohydrates, lipopolysaccharide (LPS) or **laminarin**, also enhanced enzyme activity but a similar effect was not achieved with other sugars. **Calcium** was not essential for enzyme activity and no enzyme suppression was seen at high **calcium** concns.

Prophenoloxidase activation by LPS was dose related and inhibited by PTU and tropolone. Since benzamidine and STI reduced **phenoloxidase** activity in cell **lysate** supernatants, activation may involve other factors, possibly a serine protease. Lastly, as **phenoloxidase** activity was detected in the **blood** cells (usually the morula cells) of 8 other ascidian species, it appears that it is widely distributed in the **blood** of this group of invertebrates.

ST **phenoloxidase blood** cell ascidian; Ciona **phenoloxidase blood** cell

IT Ascidiacea
Ciona intestinalis
(**phenoloxidase** of)

IT Lipopolysaccharides
RL: BIOL (Biological study)
(**phenoloxidase** of **blood** of ascidian activation by)

IT **Blood**
(**phenoloxidase** of, of ascidian)

IT **Hemocyte**
(morula cell, **phenoloxidase** of, of ascidian)

IT **9002-10-2, Phenoloxidase** 9023-34-1, **Prophenoloxidase**
RL: BIOL (Biological study)
(of **blood**, of ascidian)

IT 9002-07-7, Trypsin 9004-07-3, Chymotrypsin **9008-22-4, Laminarin** 9014-01-1, Subtilisin 37259-58-8, Serine protease
RL: BIOL (Biological study)
(**phenoloxidase** of **blood** of ascidian activation by)

IT **9002-10-2, Phenoloxidase**
RL: BIOL (Biological study)
(of **blood**, of ascidian)

RN 9002-10-2 HCAPLUS

CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **9008-22-4, Laminarin**
RL: BIOL (Biological study)
(**phenoloxidase** of **blood** of ascidian activation by)

RN 9008-22-4 HCAPLUS

CN Laminaran (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

9/11

L75 ANSWER 20 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN

AN **1989:512519** HCAPLUS

DN **111:112519**

TI **Insect** hemolymph: cooperation between humoral and cellular factors in Locusta migratoria

AU Brehelin, Michel; Drif, Latifa; Baud, Lucienne; Boemare, Noel

CS Lab. Pathol. Comp., USTL, Montpellier, 34060, Fr.

SO Insect Biochemistry (**1989**), 19(3), 301-7
CODEN: ISBCAN; ISSN: 0020-1790

DT Journal

LA English

CC 12-6 (Nonmammalian Biochemistry)
Section cross-reference(s): 15

AB In L. migratoria, **prophenoloxidase** is present in the **plasma** and **serum**, but in reduced amts. relative to the **hemocytes**. This **phenoloxidase** activity cannot be induced by either heating or freezing and thawing and it is lost by heating at 70.degree. for 30 min. Both lipopolysaccharides and **laminarin** can elicit the **prophenoloxidase**-activating system. These elicitors of **prophenoloxidase** activation are

active in **hemocyte lysate** and in **serum** but never induce any phenoloxidae activity in **plasma**. In **hemocyte lysate**, the activating system is not heat resistant, and heating at 56.degree. for 30 min prior to incubation with **laminarin** or lipopolysaccharide precludes any **phenoloxidase** activity. **Plasma** contains a strong inhibitor of the **prophenoloxidase**-activating system but **serum** does not. This inhibitor does not affect the **phenoloxidase** enzyme itself. The possible role of the activating system in immune recognition and the strategies evolved by parasites or pathogens to escape being recognized by their host are discussed.

ST Locusta hemolymph **prophenoloxidase** activating system; **insect** hemolymph **prophenoloxidase** activating system; immunity **prophenoloxidase** hemolymph **insect**

IT **Insect**
Locusta migratoria
(**prophenoloxidase** activation in hemolymph of)

IT Bacillus subtilis
Immunity
Xenorhabdus nematophilus
(**prophenoloxidase** activation in **insect** hemolymph in relation to)

IT **Hemocyte**
Hemolymph
(**prophenoloxidase** activation in, of **insect**)

IT Lipopolysaccharides
RL: BIOL (Biological study)
(**prophenoloxidase** activation induction by, in hemolymph of **insect**)

IT **9002-10-2, Phenoloxidase** 9023-34-1, **Prophenoloxidase**
RL: PROC (Process)
(activation of, in hemolymph of **insect**)

IT **7440-70-2, Calcium**, biological studies
RL: BIOL (Biological study)
(**prophenoloxidase** activation in **insect** hemolymph induction by **laminarin** and lipopolysaccharide dependent on)

IT **9002-10-2, Phenoloxidase**
RL: PROC (Process)
(activation of, in hemolymph of **insect**)

RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **7440-70-2, Calcium**, biological studies
RL: BIOL (Biological study)
(**prophenoloxidase** activation in **insect** hemolymph induction by **laminarin** and lipopolysaccharide dependent on)

RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

L75 ANSWER 21 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **1986:4573** HCAPLUS
DN **104:4573**
TI **Hemocytic** encapsulation and the **prophenoloxidase** -activation pathway in the locust Schistocerca gregaria Forsk
AU Dularay, B.; Lackie, A. M.
CS Dep. Zool., Univ. Glasgow, Glasgow, G12 8QQ, UK

SO Insect Biochemistry (**1985**), 15(6), 827-34
CODEN: ISBCAN; ISSN: 0020-1790
DT Journal
LA English
CC 15-10 (Immunochemistry)
Section cross-reference(s): 12
AB Neg.-charged Sepharose beads are not encapsulated in vivo by **hemocytes** of the locust S. gregaria. Beads incubated in locust **hemocyte lysate** supernatant, in which the **prophenoloxidase** pathway was activated by **Ca2**+ or Zymosan supernatant, were injected into the hemocoeles of locusts. Although .ltoreq.5 proteins, including **phenoloxidase**, could be shown to be attached to the beads, these coated beads were not encapsulated suggesting either that the putative opsonin did not attach or that none of the components is opsonic in this system. In addn., the **prophenoloxidase** pathway in locust **hemocyte lysate** supernatant can be partially activated in the presence of **Ca2**+ and strongly activated by **.beta.-1, 3-glucans**, and prodn. of **phenoloxidase** is not enhanced by the presence of bacterial lipopolysaccharide and is inhibited by a serine protease inhibitor. The changes in protein compn. of unactivated and activated **hemocyte lysate** supernatant are discussed.
ST **hemocyte** opsonin grasshopper; Schistocerca opsonin **hemocyte**; **prophenol oxidase** opsonin grasshopper
IT Lipopolysaccharides
Zymosans
RL: BIOL (Biological study)
(in opsonic pathway activation in grasshopper)
IT Opsonins
RL: BIOL (Biological study)
(of **hemocytes** of grasshopper)
IT Schistocerca gregaria
(opsonic pathway of hemolymph of, activation of)
IT Hemolymph
(opsonic pathway of, of grasshopper, activation of)
IT Proteins
RL: BIOL (Biological study)
(opsonic, of **hemocytes** of grasshopper)
IT **Hemocyte**
(opsonins of **lysate** of, of grasshopper)
IT **7440-70-2**, biological studies **9051-97-2**
RL: BIOL (Biological study)
(in opsonic pathway activation in grasshopper)
IT 9023-34-1
RL: BIOL (Biological study)
(opsonic pathway activated by, of grasshopper, conditions for)
IT **7440-70-2**, biological studies **9051-97-2**
RL: BIOL (Biological study)
(in opsonic pathway activation in grasshopper)
RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

RN 9051-97-2 HCAPLUS
CN .beta.-D-Glucan, (1.fwdarw.3)- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 22 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **1983:449466** HCAPLUS
DN **99:49466**
TI Activation of **prophenol oxidase** by bacterial cell walls or .**beta.-1,3-glucans** in **plasma** of the silkworm, Bombyx mori
AU Ashida, Masaaki; Ishizaki, Yuhko; Iwahana, Hidenori
CS Dep. Biol., Univ. Tokyo, Tokyo, Japan
SO Biochemical and Biophysical Research Communications (**1983**), 113(2), 562-8
CODEN: BBRCA9; ISSN: 0006-291X
DT Journal
LA English
CC 7-3 (Enzymes)
AB Silkworm hemolymph **plasma** contains **prophenol oxidase** (I) and the activating system for the proenzyme. The latter was triggered by elicitors, such as gram-neg. or gram-pos. bacterial cell walls, **glucans** with .**beta.-1,3**-glycosidic linkages, and denatured lipophorin, a silkworm **plasma** proteins, but not by lipopolysaccharides, dextran sulfate, kaolin, or inulin. **Ca2+** was required for the elicitors to activate the system. However, a putative I-activating enzyme, which activity is induced in **plasma** by the action of the elicitors, could activate I in the absence of the cation, suggesting that .gtoreq.2 reaction steps are involved in the activation reaction of I in **plasma**. The I-activating enzyme was completely inhibited in the presence of p-nitrophenyl-p'-guanidinobenzoate, an inhibitor of serine proteinases.
ST **glucan prophenol oxidase** activation; cell wall **prophenol oxidase** activation; **phenol oxidase** precursor activation; **prophenol oxidase** activation silkworm
IT Silkworm
(**prophenol oxidase**-activating system of hemolymph of)
IT Cell wall
Zymosans
RL: BIOL (Biological study)
(**prophenol oxidase**-activating system of silkworm hemolymph response to)
IT Hemolymph
(**prophenol oxidase**-activating system of, of silkworm)
IT Lipoproteins
RL: BIOL (Biological study)
(lipophorins, **prophenol oxidase**-activating system of silkworm hemolymph response to)
IT 9023-34-1
RL: PROC (Process)
(activation of, of silkworm hemolymph)
IT **7440-70-2**, biological studies
RL: BIOL (Biological study)
(**prophenol oxidase**-activating system of silkworm hemolymph requirement for)
IT **9008-22-4 9051-97-2**
RL: BIOL (Biological study)
(**prophenol oxidase**-activating system of silkworm hemolymph response to)
IT **7440-70-2**, biological studies
RL: BIOL (Biological study)
(**prophenol oxidase**-activating system of silkworm hemolymph requirement for)
RN 7440-70-2 HCAPLUS

CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

IT **9008-22-4 9051-97-2**
RL: BIOL (Biological study)
(**prophenol oxidase**-activating system of silkworm hemolymph response to)
RN 9008-22-4 HCAPLUS
CN Laminaran (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9051-97-2 HCAPLUS
CN .beta.-D-Glucan, (1.fwdarw.3)- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 23 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN **1982:83106** HCAPLUS
DN **96:83106**
TI Fungal cell wall **.beta.-1,3-glucans** induce clotting and **phenoloxidase** attachment to foreign surfaces of crayfish **hemocyte lysate**
AU Soederhaell, Kenneth
CS Inst. Physiol. Bot., Univ. Uppsala, Uppsala, 751 21, Swed.
SO Developmental & Comparative Immunology (**1981**), 5(4), 565-73
CODEN: DCIMDQ; ISSN: 0145-305X
DT Journal
LA English
CC 12-6 (Nonmammalian Biochemistry)
AB Fungal **.beta.-1,3-glucans** induced a clotting process (flocculation) resulting in protein (including **phenol oxidase**) attachment to foreign surface of a **hemocyte lysate** from 2 crayfish species Astacus astacus and Pacifastacus leniusculus. Both clotting and protein attachment was dependent on **Ca2+**. The **.beta.-1,3-glucans** did not mediate protein binding to glass surfaces nor did they affect clotting by binding to the attaching proteins. Inhibitory effects of diisopropylphosphofluoridate and soybean trypsin inhibitory indicated that a serine proteinase is involved in clotting and subsequent enzyme attachment. The clotting process was not linked to pro-**phenol oxidase** activation since urea activated the proenzyme but did not induce clotting; instead the clottable protein probably became activated by a serine proteinase.
ST proteinase clotting **hemocyte** crayfish; **phenol oxidase** clotting **hemocyte glucan**; protein attachment clotting **hemocyte glucan**; crayfish **hemocyte** clotting **glucan**
IT Astacus astacus
Pacifastacus leniusculus
(clotting and protein attachment in **hemocyte lysate** of, by **.beta.-1,3-glucans**)
IT **Hemocyte**
(**lysate**, clotting and protein attachment in, by **.beta.-1,3-glucans**)
IT Flocculation
(of **hemocyte lysate** proteins, **.beta.-1,3-glucans** induction of)
IT Proteins
RL: BIOL (Biological study)
(surface attachment of, of **hemocyte lysate**,

.beta.-1,3-glucan induction of)
IT Aphanomyces astaci
Cell wall
(.beta.-1,3-glucan of,
hemocyte lysate clotting and protein attachment by)
IT 9051-97-2
RL: BIOL (Biological study)
(clotting and protein attachment in hemocyte lysate by)
IT 37259-58-8
RL: BIOL (Biological study)
(hemocyte lysate clotting by .beta.-1,3-glucans in relation to)
IT 7440-70-2, biological studies
RL: BIOL (Biological study)
(in hemocyte lysate clotting by .beta.-1,3-glucans)
IT 9002-10-2
RL: BIOL (Biological study)
(surface attachment of, of hemocyte lysate, .beta.-1,3-glucan induction of)
IT 9051-97-2
RL: BIOL (Biological study)
(clotting and protein attachment in hemocyte lysate by)
RN 9051-97-2 HCAPLUS
CN .beta.-D-Glucan, (1.fwdarw.3)- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT 7440-70-2, biological studies
RL: BIOL (Biological study)
(in hemocyte lysate clotting by .beta.-1,3-glucans)
RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

IT 9002-10-2
RL: BIOL (Biological study)
(surface attachment of, of hemocyte lysate, .beta.-1,3-glucan induction of)
RN 9002-10-2 HCAPLUS
CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L75 ANSWER 24 OF 24 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 1980:143731 HCAPLUS
DN 92:143731
TI Attachment of phenol oxidase to fungal cell walls in arthropod immunity
AU Soederhaell, Kenneth; Haell, Lena; Unestam, Torgny; Nyhlen, Lars
CS Inst. Physiol. Bot., Univ. Uppsala, Uppsala, S-751 21, Swed.
SO Journal of Invertebrate Pathology (1979), 34(3), 285-94
CODEN: JIVPAZ; ISSN: 0022-2011
DT Journal
LA English
CC 12-5 (Nonmammalian Biochemistry)
Section cross-reference(s): 7
AB In crayfish, phenol oxidase was located in the

hemocytes. The **plasma** had infinitestimal enzyme activity. A **phenol oxidase** prepn. from **hemocytes** pptd. spontaneously after approx. 1.5 h at 22.degree. and became attached spontaneously to glass, Plexiglas, and polystyrene plastic. The enzyme prepn. could also become attached to Saccharomyces cerevisia cell walls. Attachment was mediated by a proteinaceous substance, since trypsin significantly decreased the degree of attachment. **Ca2**+ were also necessary for attachment. A .**beta**.-**1,3-glucan, laminaran**, partially prevented attachment to the fungal cell walls. Heparin caused pptn. of the **phenol oxidase** prepn. from **hemocytes**. In crayfish cuticle, proteins with assocd. **phenol oxidase** activity were attached to cell walls of Aphanomyces astaci as well as to those of S. cerevisiae.

ST **phenol oxidase** crayfish attachment fungus; immunity crayfish **hemocyte phenol oxidase**; Astacus **phenol oxidase** attachment fungus

IT **Hemocyte**
(of crayfish, **phenol oxidase** of, fungal cell wall attachment of)

IT Cell wall
(of fungus, **phenol oxidase** of crayfish **hemocyte** attachment to)

IT Aphanomyces astaci
Saccharomyces cerevisiae
(**phenol oxidase** of crayfish **hemocyte** attachment to cell wall of)

IT Astacus astacus
(**phenol oxidase** of **hemocyte** of, fungal cell wall attachment of, immunity in relation to)

IT **9002-10-2**
RL: BIOL (Biological study)
(of crayfish, fungal cell wall attachment of, immunity in relation to)

IT 9002-07-7
RL: BIOL (Biological study)
(**phenol oxidase** of crayfish attachment fungal cell wall inhibition by)

IT **9008-22-4**
RL: BIOL (Biological study)
(**phenol oxidase** of crayfish attachment to fungal cell wall inhibition by)

IT **7440-70-2**, biological studies
RL: BIOL (Biological study)
(**phenol oxidase** of crayfish attachment to fungal cell wall requirement for)

IT 9005-49-6, biological studies
RL: BIOL (Biological study)
(**phenol oxidase** of crayfish attachment to fungal cell wall response to)

IT **9002-10-2**
RL: BIOL (Biological study)
(of crayfish, fungal cell wall attachment of, immunity in relation to)

RN 9002-10-2 HCAPLUS

CN Oxygenase, monophenol mono- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **9008-22-4**
RL: BIOL (Biological study)
(**phenol oxidase** of crayfish attachment to fungal cell wall inhibition by)

RN 9008-22-4 HCAPLUS

CN Laminaran (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **7440-70-2**, biological studies
RL: BIOL (Biological study)
(**phenol oxidase** of crayfish attachment to fungal cell wall requirement for)
RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

=> d all 25-30

L89 ANSWER 25 OF 30 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 2003:217145 BIOSIS
DN PREV200300217145
TI Haemolymph parameters of Pacific white shrimp (Litopenaeus vannamei) infected with Taura syndrome virus.
AU Song, Yen-Ling (1); Yu, Chun-I.; Lien, Tzu-Wen; Huang, Chih-Cheng; Lin, Min-Nan
CS (1) Institute of Zoology, National Taiwan University, Taipei, 106, Taiwan: song@ccms.ntu.edu.tw Taiwan
SO Fish & Shellfish Immunology, (April 2003, 2003) Vol. 14, No. 4, pp. 317-331. print.
ISSN: 1050-4648.
DT Article
LA English
AB Pacific white shrimp (Litopenaeus vannamei) were injected with Taura syndrome virus (TSV) to assess shrimp immune responses and survival. TSV-infected shrimp suffered high mortality, but mock-infected and untreated shrimp experienced no mortality. Moribund shrimp were a pale, reddish colour and were lethargic and soft-shelled. Their haemolymph was clear red and coagulated poorly. In TSV-infected shrimp, the total haemocyte count (THC), hyalinocyte and granulocyte counts, and total plasma protein decreased significantly to 21%, 24%, 17% and 56% of untreated control values, respectively. Haemocyanin decreased to 67%, and clottable proteins to 80% of control values ($P<0.01$). Copper and **calcium** ions, haemocytic transglutaminase (TGase) activity and plasma growth inhibitory activity against Vibrio harveyi also decreased significantly. Generation of intrahaemocytic superoxide anion, O2-, in TSV-infected shrimp was significantly greater ($P<0.05$) than in both control groups, no matter whether **glucan** stimulated or unstimulated. But the relative increase of intrahaemocytic O2- generation in TSV-infected shrimp response to **glucan** stimulation was lower in both controls. Plasma **phenoloxidase** (PO) activity increased significantly in TSV-infected shrimp. The plasma bacterial agglutinin titre against E. coli and V. harveyi, growth inhibition of E. coli and the concentration of magnesium ions in TSV-infected shrimp did not change significantly. In conclusion, ten of thirteen haemolymph parameters changed significantly during the host-TSV interaction. These parameters might be valuable references of shrimp health status.
CC Cytology and Cytochemistry - Animal *02506
Biochemical Studies - General *10060
Biochemical Studies - Carbohydrates *10068
Enzymes - General and Comparative Studies; Coenzymes *10802
Blood, Blood-Forming Organs and Body Fluids - Blood and Lymph Studies *15002
Blood, Blood-Forming Organs and Body Fluids - Blood Cell Studies *15004
Physiology and Biochemistry of Bacteria *31000

Virology - General; Methods *33502
Immunology and Immunochemistry - General; Methods *34502
Medical and Clinical Microbiology - Virology *36006
Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology - Arthropoda - Crustacea *64054
BC 03603
Enterobacteriaceae 06702
Vibrionaceae 06704
Malacostraca 75112
IT Major Concepts
Blood and Lymphatics (Transport and Circulation); Immune System (Chemical Coordination and Homeostasis); Infection
IT Parts, Structures, & Systems of Organisms
granulocyte: blood and lymphatics, immune system; hemocyte: blood and lymphatics, immune system; hemolymph: blood and lymphatics; hyalinocyte: blood and lymphatics; plasma: blood and lymphatics
IT Diseases
Taura syndrome virus infection: viral disease
IT Chemicals & Biochemicals
calcium(II) ions; copper(II) ions; **glucan**; hemocyanin; magnesium ions; **phenoloxidase** [**EC 1.14.18.1**]; superoxide anion; transglutaminase [EC 2.3.2.13]
IT Methods & Equipment
total hemocyte count: clinical techniques
IT Miscellaneous Descriptors
immune response; mortality; survival
ORGN Super Taxa
Enterobacteriaceae: Facultatively Anaerobic Gram-Negative Rods, Eubacteria, Bacteria, Microorganisms; Malacostraca: Crustacea, Arthropoda, Invertebrata, Animalia; Picornaviridae: Positive Sense ssRNA Viruses, Viruses, Microorganisms; Vibrionaceae: Facultatively Anaerobic Gram-Negative Rods, Eubacteria, Bacteria, Microorganisms
ORGN Organism Name
Escherichia coli (Enterobacteriaceae); Litopenaeus vannamei [Pacific white shrimp] (Malacostraca): host; Taura syndrome virus [Taura syndrome virus of marine penaeid shrimp] (Picornaviridae): pathogen; Vibrio harveyi (Vibrionaceae)
ORGN Organism Superterms
Animals; Arthropods; Bacteria; Crustaceans; Eubacteria; Invertebrates; Microorganisms; Positive Sense Single-Stranded RNA Viruses; Viruses
RN **14127-61-8** (**CALCIUM**(II) IONS)
15158-11-9 (COPPER(II) IONS)
9012-72-0 (**GLUCAN**)
22537-22-0 (MAGNESIUM IONS)
9002-10-2 (**PHENOLOXIDASE**)
9002-10-2 (**EC 1.14.18.1**)
11062-77-4 (SUPEROXIDE ANION)
9067-75-8Q (TRANSGLUTAMINASE)
80146-85-6Q (TRANSGLUTAMINASE)
137741-97-0Q (TRANSGLUTAMINASE)
80146-85-6 (EC 2.3.2.13)

L89 ANSWER 26 OF 30 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1995:67523 BIOSIS
DN PREV199598081823
TI Comparative study of hemolymph **phenoloxidase** activity in Aedes aegypti and Anopheles quadrimaculatus and its role in encapsulation of Brugia malayi microfilariae.
AU Nayar, J. K. (1); Bradley, T. J.
CS (1) Fla. Med. Entomol. Lab., IFAS, Univ. Florida, 200 9th St. SE, Vero Beach, FL 32962 USA

SO Comparative Biochemistry and Physiology A Comparative Physiology, (1994) Vol. 109, No. 4, pp. 929-938.
ISSN: 0300-9629.
DT Article
LA English
AB Hemolymph **phenoloxidase** activity of sugar-fed and blood-fed females of Anopheles quadrimaculatus and Aedes aegypti showed similar characteristics. **Phenoloxidase** was present as an inactive proenzyme in both mosquito species and was partially activated during collection of the hemolymph. In both mosquito species, **phenoloxidase** activity was modulated by different buffers and activated **phenoloxidase** did not need **Ca**-2+. Enzymatic activity was higher in the hemocytes than in the plasma in both mosquito species. Trypsin, **laminarin**, and blood-feeding on uninfected and Brugia malayi-infected jirds enhanced hemolymph **phenoloxidase** activity in both mosquito species. The appearance of hemolymph **phenoloxidase** activity was inhibited by p-nitrophenyl p'-guanidinobenzoate HCl, soybean trypsin inhibitor, ethylenediaminetetraacetic acid. diethyldithiocarbamic acid, saturated 1-phenyl-2-thiourea and reduced glutathione, but not by benzamidine in A. quadrimaculatus. The appearance of hemolymph **phenoloxidase** activity was inhibited by benzamidine, diethyldithiocarbamic acid, saturated 1-phenyl-2-thiourea, reduced glutathione, p-nitrophenyl p'-guanidinobenzoate and soybean trypsin inhibitor, but not by ethylenediaminetetraacetic acid in A. aegypti. It is suggested that in both mosquito species, blood-feeding and migration of sheathed microfilariae in the homocoel activated the prophenoloxidase in the hemolymph and caused the encapsulation and melanization of microfilarial sheaths and microfilariae of B. malayi.
CC Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Enzymes - Physiological Studies *10808
Metabolism - Proteins, Peptides and Amino Acids *13012
Blood, Blood-Forming Organs and Body Fluids - Blood and Lymph Studies *15002
Parasitology - General *60502
Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology - Aschelminthes *64016
Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology - Insecta - Physiology *64076
BC Nematoda 51300
Diptera *75314
IT Major Concepts
Blood and Lymphatics (Transport and Circulation); Enzymology (Biochemistry and Molecular Biophysics); Metabolism; Parasitology; Physiology
IT Chemicals & Biochemicals
PHENOLOXIDASE; PROPHENOLOXIDASE
IT Miscellaneous Descriptors
BLOOD-FEEDING; HEMOCOEL; HEMOLYMPH; MELANIZATION; PROPHENOLOXIDASE
ORGN Super Taxa
Diptera: Insecta, Arthropoda, Invertebrata, Animalia; Nematoda: Aschelminthes, Helminthes, Invertebrata, Animalia
ORGN Organism Name
Aedes aegypti (Diptera); Anopheles quadrimaculatus (Diptera); Brugia malayi (Nematoda)
ORGN Organism Superterms
animals; arthropods; aschelminths; helminths; **insects**; invertebrates
RN **9002-10-2 (PHENOLOXIDASE)**
9023-34-1 (PROPHENOLOXIDASE)

L89 ANSWER 27 OF 30 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1990:262424 BIOSIS

DN BA90:4510
TI THE 76-KD CELL-ADHESION FACTOR FROM CRAYFISH HEMOCYTES PROMOTES ENCAPSULATION IN-VITRO.
AU KOBAYASHI M; JOHANSSON M W; SODERHALL K
CS DEP. PHYSIOLOGICAL BOTANY, UNIV. UPPSALA, BOX 540, S-751 21 UPPSALA, SWED.
SO CELL TISSUE RES, (1990) 260 (1), 13-18.
CODEN: CTSRCS. ISSN: 0302-766X.
FS BA; OLD
LA English
AB Semigranular cells from the crayfish, Pacifastacus leniusculus, were separated by Percoll gradient centrifugation and were used to study the encapsulation of foreign particles. The semigranular cells were found strongly to encapsulate glass beads coated with haemocyte lysate in which the prophenoloxidase-activating system had been activated with **laminarin** or with a low concentration of **calcium ions**. The granular cells only weakly encapsulated these particles. The encapsulation-promoting factor was purified from haemocyte lysates and found to be a 76 kD protein which was recognized by an antiserum to the previously described 76 kD cell-adhesion factor. After the last step in purification (Con A-Sepharose chromatography), the flowthrough consisted of several proteins, which had some, but less, encapsulation-promoting activity and contained a 30 kD band that was also recognized by the antiserum to the 76 kD cell-adhesion factor. If the haemocyte lysate prepared in low [**Ca2**+] was incubated with a **.beta.-1,3-glucan** prior to purification, no 76 kD protein could be isolated but only a 30 kD protein. The 30 kD protein thus seems to be a degradation product of the 76 kD cell-adhesion factor. We conclude that the 76 kD protein which is released from degranulating haemocytes, and to a lesser extent its 30 kD fragment, can promote encapsulation. **Phenoloxidase** did not have any encapsulation-promoting activity.
CC Cytology and Cytochemistry - Animal *02506
Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Biochemical Studies - Minerals 10069
Biophysics - General Biophysical Techniques 10504
In Vitro Studies, Cellular and Subcellular 32600
Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology - Arthropoda - Crustacea *64054
BC Malacostraca 75112
IT Miscellaneous Descriptors
PACIFASTACUS-LENIUSCULUS **CALCIUM**
RN **7440-70-2** (**CALCIUM**)

L89 ANSWER 28 OF 30 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1988:440369 BIOSIS
DN BA86:92467
TI THE PROPERTIES AND PURIFICATION OF A BLABERUS-CRANIIFER PLASMA PROTEIN WHICH ENHANCES THE ACTIVATION OF HEMOCYTE PROPHENOLOXIDASE BY A **BETA 1 3 GLUCAN**.
AU SODERHALL K; ROGENER W; SODERHALL I; NEWTON R P; RATCLIFFE N A
CS DEP. PHYSIOL. BOT., UNIV. UPPSALA, BOX 540, S-751 21 UPPSALA, SWED.
SO INSECT BIOCHEM, (1988) 18 (4), 323-330.
CODEN: ISBCAN. ISSN: 0020-1790.
FS BA; OLD
LA English
AB A plasma factor has been detected in the cockroach, Blaberus craniifer, which, in haemocyte lysaes, enhances the activation of a peptidase and prophenoloxidase (proPO) by **laminarin** (a **.beta.-1,3-glucan**). The factor was isolated by affinity chromatography on **laminarin**-Sepharose and FPLC **ion**-exchange chromatography. It is a glycoprotein with a molecular weight (Mw), as determined by SDS-electrophoresis, of **ca** 90,000. Amino acid analysis showed a very high content (**ca** 65%) of

hydrophilic amino acids. No peptidase or **phenoloxidase** (PO) activity was detected in the isolated plasma protein. After removal of the proPO-activating protease by chromatography on Blue Sepharose, the resulting partially purified proPO could no longer be activated by **laminarin** or **laminarin** plus purified plasma factor.

CC Cytology and Cytochemistry - Animal *02506
Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Biochemical Studies - Carbohydrates 10068
Biophysics - General Biophysical Techniques 10504
Enzymes - Physiological Studies *10808
Blood, Blood-Forming Organs and Body Fluids - Blood and Lymph Studies *15002
Blood, Blood-Forming Organs and Body Fluids - Blood Cell Studies *15004
Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology - Insecta - Physiology *64076

BC **Orthoptera 75340**

IT Miscellaneous Descriptors
CHROMATOGRAPHY

RN 9023-34-1 (PROPHENOLOXIDASE)
9012-72-0Q, 9037-91-6Q (**GLUCAN**)

L89 ANSWER 29 OF 30 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1986:133167 BIOSIS
DN BA81:43583
TI STUDIES ON PROPHENOLOXIDASE AND PROTEASE ACTIVITY OF BLABERUS-CRANIIFER HEMOCYTES.
AU LEONARD C; SODERHALL K; RATCLIFFE N A
CS INST. PHYSIOLOGICAL BOTANY, UNIV. UPPSALA, BOX 540, 751-21 UPPSALA, SWEDEN.
SO INSECT BIOCHEM, (1985) 15 (6), 803-810.
CODEN: ISBCAN. ISSN: 0020-1790.
FS BA; OLD
LA English
AB Using a citrate-EDTA buffer as an anticoagulant it was possible to isolate intact haemocytes from the insect, Blaberus craniifer, without causing extensive degranulation and subsequent clotting. A haemocyte lysate from this insect contained prophenoloxidase (proPO), which could be activated by **.beta.1,3-glucans**. The activation process was dependent upon **Ca2+ ions** and seemed to occur by a limited proteolysis, since several serine protease inhibitors such as soybean trypsin inhibitor, benzamidine and p-nitrophenyl-p'-guanidobenzoate blocked convertion of proPO to the active enzyme. Treatment of proPO with urea or heat also caused proPO activation but probably without the intervention of serine proteases, since the protease inhibitors used failed to block the activation. Within the haemocyte lysate, several endopeptidases were present, which were enhanced in activity by prior treatment with **.beta.1,3-glucans**. These endopeptidases were inhibited in activity when the haemocyte lysate was incubated with benzamidine prior to the addition of **.beta.1,3-glucan**. This provides further indications that the activation of proPO involves a limited proteolytic attack. The active **phenoloxidase** enzyme became strongly bound to foreign surfaces and this phenomenon may assist in providing opsonic properties for the proPO cascade.

CC Cytology and Cytochemistry - Animal *02506
Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Enzymes - Chemical and Physical *10806
Metabolism - Proteins, Peptides and Amino Acids *13012
Blood, Blood-Forming Organs and Body Fluids - Blood Cell Studies *15004
Immunology and Immunochemistry - Immunopathology, Tissue Immunology *34508

Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology - Insecta - Physiology *64076
BC **Orthoptera 75340**
IT Miscellaneous Descriptors
BETA-1 3 GLUCANS OPSONIN
CELLULAR RECOGNITION SYSTEM
RN 9001-92-7 (PROTEASE)
9023-34-1 (PROPHENOLOXIDASE)

L89 ANSWER 30 OF 30 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1984:259139 BIOSIS
DN BA77:92123
TI THE PROPHENOL OXIDASE **EC-1.14.18.**
1 ACTIVATING SYSTEM IN CRAYFISH ASTACUS-ASTACUS.
AU ASHIDA M; SODERHALL K
CS INST. OF PHYSIOL. BOT., UNIV. OF UPPSALA, BOX 540, S-751 21 UPPSALA, SWED.
SO COMP BIOCHEM PHYSIOL B COMP BIOCHEM, (1984) 77 (1), 21-26.
CODEN: CBPBB8. ISSN: 0305-0491.
FS BA; OLD
LA English
AB A preparation (designated 0-40 fraction) containing stable prophenoloxidase (proPO) and other dormant components of the proPO activating system was obtained from crayfish hemocytes. Activation of proPO in the 0-40 fraction was elicited by **.beta.1, 3-glucans**, SDS [sodium dodecyl sulfate], trypsin or heat; a protease inhibitor, p-NPGB [p-nitrophenyl-p'-guanidinobenzoate], inhibited activation of proPO by **.beta.1,3-glucans** but, not activation by SDS or heat. **Ca2+** was always necessary for the activation of proPO and treatment of the 0-40 fraction with EDTA caused irreversible inactivation of proPO activating system, seemingly leaving proPO intact. The enzyme responsible for activating proPO could be separated from proPO; this enzyme was inhibited by p-NPGB. This enzyme could activate proPO in the 0-40 fraction treated with EDTA. Protease activity increased > 10-fold in the 0-40 fraction after the incubation with **.beta.1,3-glucans** and **Ca2+**. The proPO activating system may operate as a recognition system in crayfish. This system may function as a complement-like system in arthropods.
CC Cytology and Cytochemistry - Animal *02506
Ecology; Environmental Biology - Water Research and Fishery Biology 07517
Biochemical Studies - General 10060
Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Biochemical Studies - Carbohydrates 10068
Biochemical Studies - Minerals 10069
External Effects - Temperature as a Primary Variable - Hot 10618
Enzymes - Methods 10804
Enzymes - Physiological Studies *10808
Blood, Blood-Forming Organs and Body Fluids - Blood Cell Studies *15004
Pharmacology - Drug Metabolism; Metabolic Stimulators 22003
Immunology and Immunochemistry - Immunopathology, Tissue Immunology *34508
Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology - Arthropoda - General 64052
Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology - Arthropoda - Crustacea *64054
BC Arthropoda - Unspecified 75000
Malacostraca 75112
IT Miscellaneous Descriptors
ARTHROPOD HEMOCYTE COMPLEMENT-LIKE SYSTEM **BETA-1 3 GLUCAN** P NITROPHENYL-P'-GUANIDINO BENZOATE METABOLIC-DRUG

RN **9002-10-2 (EC-1.14.18.1)**

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FILE 'WPIX' ENTERED AT 08:17:26 ON 12 AUG 2003

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MOST RECENT DERWENT UPDATE: 200351 <200351/DW>
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http://www.derwent.com/userguides/dwpi_guide.html <<<

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L106 ANSWER 1 OF 9 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN
AN 2003-156970 [15] WPIX
DNC C2003-040861
TI Composition for detecting a peptidoglycan, useful for detecting Gram negative bacterial infections, comprises extract of Galleria mellonella body fluid.
DC B04 D16
IN CHO, T H; EO, J H; JU, C H; KIM, H R; KIM, H S; KIM, M S; **LEE, B R**; **PARK, B S**; PARK, J W; PARK, Y S; SONG, S H; YEO, J M; YOON, J W; **AUH, J**; CHO, T; JOO, C; KIM, H; KIM, M; LEE, B; PARK, B; PARK, J; PARK, Y; SONG, S; YEO, J; YOON, J
PA (SAMY-N) **SAMYANG GENEX CORP**
CYC 100
PI WO 2002101083 A1 20021219 (200315)* EN 16p C12Q001-26
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
KR 2002093612 A 20021216 (200329) C12Q001-26
ADT WO 2002101083 A1 WO 2002-KR1086 20020607; KR 2002093612 A KR 2002-31856 20020607
PRAI KR 2002-31856 20020607; KR 2001-31890 20010608
IC ICM C12Q001-26
AB WO2002101083 A UPAB: 20030303
NOVELTY - A composition (I) for detecting a peptidoglycan, comprises the extract of an insect body fluid having a **phenoloxidase** activity on the peptidoglycan without the addition of **calcium**.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(1) detection of peptidoglycan, comprising adding (I) to a sample obtained from a test subject and measuring the **phenoloxidase** activity; and

(2) a detection kit for peptidoglycan comprising (I).

USE - (I) is useful for detecting a peptidoglycan (claimed), which can be used for detecting the infection of clinical samples e.g. blood, tissue and urine, with gram-positive bacteria such as Staphylococcus, Streptococcus, Pneumococcus and Corynebacterium diphtheriae. (I) is also useful for detecting gram-positive bacteria in animals or humans and can thus be useful in the prevention and treatment of food poisoning and bacterial sepsis.

ADVANTAGE - Prior art methods using the prophenoloxydase system of insects to detect peptidoglycans required the addition of **calcium** to activate a **phenoloxidase** system on peptidoglycan and also detected lipopolysaccharides and **beta -1,3-glucan** as well as peptidoglycan. (I) has a **phenoloxidase** activity on the peptidoglycan without the addition of **calcium** and also selectively detects peptidoglycan in small amounts of sample.

Dwg.0/8

FS CPI

FA AB; DCN

MC CPI: B04-B04B1; B04-B04D5; B04-B04M; B04-C02F; B04-F02; B04-F10B; B04-L03A; B11-B; B11-C07B1; B11-C08E3; B12-K04A4; D05-A02A; D05-H04; D05-H13

TECH UPTX: 20030303

TECHNOLOGY FOCUS - BIOLOGY - Preparation: The extract of insect body fluid is a plasma solution separated from insect body fluid (preferably a fraction prepared by treating plasma with solvent or buffer solution) or a plasma solution and hemocyte lysate of insect body fluid (preferably a fraction prepared by lysing hemocyte and treating with solvent or buffer solution, especially a fraction prepared by adding hemocyte lysate or partially purified hemocyte lysate to fractions obtained by treating plasma of Galleria mellonella larvae with a solvent or a buffer solution). The extract of insect body fluid is derived from Galleria mellonella larvae. The solvent or buffer solution comprises a chelating agent for chelating **calcium** ions present in the sample. The fraction is purified by column chromatography, where the column is filled with a sugar resin or a vinyl resin.

ABEX UPTX: 20030303

EXAMPLE - Galleria mellonella larva (2.5 - 3) cm were selected and anesthetized on ice for 10 - 30 minutes. Anticoagulant buffer solution (pH 4.6) and p-APMSF (0.2 mM) (undefined) were injected into the second node from the head. The body fluid (4 - 5 drops) was obtained by slicing halfway from the second node to the tail, and injecting buffer solution. The anticoagulant buffer solution contained NaCl (15 mM), trisodium citrate (30 mM), citric acid (26 mM) and ethylenediamine tetra acetic acid (EDTA) (20 mM). Body fluid (50 ml) was centrifuged at 4degreesC for 20 minutes to produce supernatant (plasma) and precipitates (hemocyte). The hemocyte separated from the body fluid was added to tris(hydroxymethyl)aminomethane (TRIS) buffer (50 mM) (pH 6.5) including EDTA (1 mM) at a volume of half that of the hemocyte, sonicated for 2 minutes, and then centrifuged at 4degreesC to produce a supernatant (primary sample). The precipitate removed from the supernatant was added to TRIS buffer at a volume of half that of the volume of hemocyte and centrifuged one more time to produce a supernatant (second sample). The primary and second samples (referred as hemocyte lysate) were kept in a refrigerator at -80degreesC. The solution (30 microl) containing hemocyte lysate was tested for the **phenoloxidase** activity at various concentrations of peptidoglycan. Peptidoglycan solutions were prepared for 2, 20 and 200 ng/ml and treated with 4-MC/4-HP coloring reaction at 30degreesC for 1 hour and then absorbance at 520 nm was measured. The correlation constant between the peptidoglycan concentration and the **phenoloxidase** activity was 0.98.

L106 ANSWER 2 OF 9 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN
AN 2002-217273 [27] WPIX
DNC C2002-066541
TI Novel protein of the **phenoloxidase** system, useful as a component of a composition for fungal infection diagnosis.
DC B04 C06 D16
IN **HONG, S S; LEE, B R; LEE, H S;** PARK, J J; **HONG, S; LEE, B L; LEE, H; PARK, C J**
PA (SAMY-N) **SAMYANG GENEX CORP**
CYC 97
PI WO 2002016425 A1 20020228 (200227)* EN 35p C07K014-435
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
AU 2001082640 A 20020304 (200247) C07K014-435
KR 2002016079 A 20020304 (200258) C07K014-435
ADT WO 2002016425 A1 WO 2001-KR1435 20010824; AU 2001082640 A AU 2001-82640 20010824; KR 2002016079 A KR 2000-49207 20000824
FDT AU 2001082640 A Based on WO 200216425
PRAI KR 2000-49207 20000824
IC ICM C07K014-435
AB WO 200216425 A UPAB: 20020429
NOVELTY - A protein of the **phenoloxidase** system comprising a 415 residue amino acid sequence, fully defined in the specification, its mutant or fraction, preferably residues 100-415, is new.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a DNA sequence encoding the novel protein.
USE - The protein is useful as a component of a composition for fungal infection diagnosis activated by **beta -1, 3-glucan**.
Dwg.0/6
FS CPI
FA AB; DCN
MC CPI: B04-E03; B04-F09; B04-N02; B11-C08; B12-K04A4; C04-E03; C04-F09; C04-N02; C11-C08; C12-K04A4; D05-H09; D05-H12A; D05-H14; D05-H17A
TECH UPTX: 20020429
TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preparation: The novel protein is produced by standard recombinant techniques.
ABEX UPTX: 20020429
EXAMPLE - 400 larvae of Holotrichia diomphalia were collected and anesthetized on ice. Hemolymph was collected in a test tube on ice from each larvae by inserting 1 ml of the anticoagulation buffer solution through a 25 G needle connected to a 5 ml sterile syringe and by dissecting the abdomen of the larvae. After centrifuging the collected hemolymph for 10 minutes at 4 degrees C at 420 xg and washing it with the anticoagulation buffer, the hemocytes were collected. The collected hemocytes were stored at -80 degrees C. 0.5 g of the hemocytes were suspended into 5 ml of buffer solution A (Tris buffer (pH 6.5, 50 mM + 1 mM ethylenediaminetetraacetic acid (EDTA))) and homogenized by sonicating for 5 s five times. The sonicated hemocytes were centrifuged for 20 minutes at 4 degrees C at 22000 xg. The supernatant was used as the hemocyte lysate. The plasma was collected from the supernatant after centrifuging the hemolymph and used for further experiments by adjusting the pH to 4.6 by adding 1 M citric acid and storing at -80 degrees C. 40 ml of the supernatant, obtained by centrifuging 45 ml of the plasma for 4 hours at 4 degrees C at 203006 xg was concentrated to 3 ml by ultrafiltration. After packing Toyopearl HW-55S resin into a 1.4x50 cm column, the column was equilibrated with 50 mM Tris-HCl/20 mM EDTA buffer solution (pH 6.5). The concentrated sample was loaded into the

equilibrated column. The solution was eluted at 0.1 ml/minute flow rate with 50 mM Tris-HCl/20 mM EDTA buffer. The concentration of the protein was determined by collecting 3.5 ml fractions and measuring absorbance at 280 nm. The **phenoloxidase** composition was obtained by collecting the fractions exhibiting the **phenoloxidase** activity by adding **calcium** ion and **beta-1,3-glucan**.

L106 ANSWER 3 OF 9 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN
AN 2001-457514 [49] WPIX
DNC C2001-138380
TI New composition for detecting **beta-1,3-glucan** useful for early diagnosis of fungal and protozoal infections, e.g. in immuno-compromised cancer patients, organ transplant patients or AIDS patients, or in aquaculture industries.
DC A89 B04 C07 D16
IN EO, J H; **HONG, S S**; JU, C H; **LEE, B R**; LEE, G Y; **LEE, H S**; **PARK, B S**; PARK, J J; **AUH, J H**; **HONG, S**; **JOO, C H**; **LEE, B L**; **LEE, H**; **LEE, K Y**; **PARK, C J**
PA (SAMY-N) **SAMYANG GENEX CORP**; (SAMY-N) **SAMYANG GENEX CO LTD**
CYC 95
PI WO 2001052905 A1 20010726 (200149)* EN 39p A61K049-00
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
AU 2001028914 A 20010731 (200171) A61K049-00
KR 2001076356 A 20010811 (200212) C12Q001-28
US 2002197662 A1 20021226 (200304) C12Q001-26
EP 1274466 A1 20030115 (200306) EN A61K049-00
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR
CN 1406139 A 20030326 (200344) A61K049-00
ADT WO 2001052905 A1 WO 2001-KR106 20010120; AU 2001028914 A AU 2001-28914 20010120; KR 2001076356 A KR 2001-3036 20010119; US 2002197662 A1 Cont of WO 2001-KR106 20010120, US 2001-938334 20010823; EP 1274466 A1 EP 2001-942566 20010120, WO 2001-KR106 20010120; CN 1406139 A CN 2001-803983 20010120
FDT AU 2001028914 A Based on WO 200152905; EP 1274466 A1 Based on WO 200152905
PRAI KR 2000-2542 20000120
IC ICM A61K049-00; C12Q001-26; C12Q001-28
ICS A61K035-64
AB WO 200152905 A UPAB: 20010831
NOVELTY - A new composition for detecting **beta -1,3-glucan** includes all or some components of the **phenoloxidase** system of insects and exhibits **phenoloxidase** activation by **beta -1,3-glucan** in the presence of **calcium** ions (which can also activate the **phenoloxidase** system in insects) enabling specific **beta -1,3-glucan** detection.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for detecting **beta -1,3-glucan**, by collecting a sample, adding the composition as above and measuring **phenoloxidase** activity.

USE - The composition is useful to diagnose infection by microorganisms having **beta -1,3-glucan** as a cell wall component, since it can specifically detect **beta -1,3-glucan**; kits are provided (claimed). It is especially useful to provide early diagnosis of

infections by fungi such as Candida and/or protozoa such as Pneumocytis carinii in humans, especially in immuno-compromised patients e.g. immuno-compromised cancer patients, organ transplant patients and AIDS patients, in which diagnosis at an early stage of infection may enable mortality to be reduced by administration of antibiotics or antifungal drugs. The composition is also useful in aquaculture industries such as lobster, fish or clam breeding to provide early diagnosis of fungal infections to enable steps to be taken to reduce economic damage.

ADVANTAGE - The method enables earlier diagnosis of fungal infections than previous methods.

Dwg.0/11

FS CPI

FA AB; DCN

MC CPI: A99-A; B04-L03; B04-N03; B11-C08E; B12-K04; B12-K04A1; B12-K04A4; B12-K04E; C11-C08; C12-K04A; C12-K04E; D05-H05

TECH UPTX: 20010831

TECHNOLOGY FOCUS - BIOLOGY - Preferred Composition: The composition preferably detects **beta-1,3-glucan** down to 20 pg/ml.

Preparation: The composition is preferably prepared from insect (especially Coleoptera, Tenebrionidae or Scarabaeidae) plasma and hemocyte lysate by:

(a) collecting a sample comprising a mixture of plasma and hemocyte lysate from an insect;

(b) treating the sample with a solvent or buffer solution containing sufficient chelating agent to chelate **calcium** ions in the sample in a separation process which produces fractions (preferably column chromatography and especially using a column packed with a resin comprising dextran or vinyl); and

(c) selecting from fractions those exhibiting **phenoloxidase** activation by **beta-1,3-glucan** in the presence of **calcium** ions.

Alternatively, insect plasma may be treated with a solvent or buffer solution as in (b), fully/partially purified hemocyte lysate added to the fractions and fractions selected as in (c).

The methods may optionally further comprise addition of fully/partially purified hemocyte to fractions selected as in (c).

ABEX UPTX: 20010831

EXAMPLE - Larvae of Tenebrio molitor were anesthetized on ice and three drops of hemolymph collected by needle from the first segment from the head. 60 ml hemolymph was centrifuged (203,006 g, 4 hours, 4degreesC) and supernatant filtered (0.45 microm) and concentrated by ultrafiltration (10,000 cutoff). A resin column chromatography column was prewashed with anticoagulation buffer (15 mM NaCl, 136 mM trisodium citrate, 26 mM citric acid, 20 mM EDTA, pH 5.5), concentrated sample added and column eluted with anticoagulation buffer (0.18 ml/min.). Eluant was collected in 3.8 ml aliquots and absorbance measured (280 nm) to check protein concentration. A standard 4-methylcatechol (MC)/4-hydroxyproline ethyl ester (HP) development reaction was performed using **beta-1, 3-glucan**, and fractions that developed color in the presence of **beta-1,3-glucan** were collected, to produce 3.8 ml primary purified composition. 10 microl composition was then added to each of 10 microl plasma samples obtained from 11 healthy subjects and 50 hospitalized cancer patients, and the 4-MC/4-HP color development reaction performed. Absorbance (520 nm) was measured and **beta-1,3-glucan** concentration calculated using a standard curve. Results demonstrated negligible **beta-1,3-glucan** concentrations in healthy subjects versus e.g. over 0.3 microg/ml in immuno-compromised patients with solid (n=20) or hematogenic (n=21) tumors.

L106 ANSWER 4 OF 9 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN

AN **1999-613009** [53] WPIX
DNN **N1999-451909** DNC **C1999-178641**
TI Measuring enzyme reaction for determination of substance involved in enzyme reaction e.g. Limulus reaction or **phenol oxidase** precursor cascade reaction.
DC B04 D16 S03
IN TAMURA, H; TANAKA, S
PA (SEGK) SEIKAGAKU CORP; (SEGK) SEIKAGAKU KOGYO CO LTD
CYC 27
PI EP 957366 A1 19991117 (199953)* EN 11p G01N033-579
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
JP 11290095 A 19991026 (200002) 8p C12Q001-25
US 6306577 B1 20011023 (200165) C12Q001-00
ADT EP 957366 A1 EP 1999-302772 19990409; JP 11290095 A JP 1998-99665 19980410; US 6306577 B1 US 1999-290091 19990412
PRAI JP 1998-99665 19980410
IC ICM C12Q001-00; C12Q001-25; G01N033-579
ICS G01N021-00; G01N021-64; G01N033-53
AB EP 957366 A UPAB: 19991215
NOVELTY - A method for measuring an enzyme reaction to determine an amount of a substance involved in the enzyme reaction is new and comprises, measuring a time course of a parameter of the enzyme reaction and the time required for the parameter to change from a first threshold to a second threshold value and correlating the measured time to an amount of the substance involved in the enzyme reaction.
USE - The method is useful for measuring an enzyme reaction involving a substance e.g. an endotoxin, (**1-->3**)- **beta -D-glucan** or peptidoglycan (derived from causative bacteria), using the Limulus reaction or the **phenol oxidase** precursor cascade reaction, ultimately for the diagnosis of infectious diseases.
ADVANTAGE - The method accurately and rapidly measures the enzyme reaction with greatly reduced errors.
Dwg.0/0
FS CPI EPI
FA AB; DCN
MC CPI: B04-L03A; B04-N06; B11-C07B; B11-C08E3; B12-K04A; B12-K04E; D05-A02A; D05-H09
EPI: S03-E04B1A; S03-E04C2; S03-E04D; S03-E04E; S03-E09E; S03-E14H; S03-E14H5
TECH UPTX: 19991215
TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Method: The first threshold value represents a change of the parameter after a start of the reaction and the second threshold value represents a change of the parameter after the first threshold value. The first threshold value is set within 0.1-10 (especially 0.5-7) % of a maximum change of the parameter of the enzyme reaction and the second threshold value is set within 0.3-50 (especially 1-10) % of the maximum change of the parameter of the enzyme reaction. The parameter of the enzyme reaction is absorbance turbidity, transmitted light intensity, fluorescence polarization or scattered light intensity. The substance involved in the enzyme reaction is endotoxin, (1right arrow3)-**beta-D-glucan** or peptidoglycan. The enzyme reaction is a Limulus reaction or a **phenol oxidase** precursor cascade reaction. A pigment produced from the chromogenic synthetic peptide substrate by a clotting enzyme is measured in terms of absorbance as the parameter of the enzyme reaction or formation of coagulin by a clotting enzyme is measured in terms of absorbance or turbidity as the parameter of the enzyme reaction.
ABEX UPTX: 19991215
WIDER DISCLOSURE - An apparatus for carrying out the method is also disclosed comprising a means for inputting and storing the threshold values, a means for measuring the parameter of the enzyme reaction and

inputting and storing the measured values, a means of measuring the time required for the parameter of the enzyme reaction to change from the first threshold value to the second threshold value and storing the measured values and a means of displaying the time required for the change. EXAMPLE - A standard material of endotoxin derived from Escherichia coli UKT-B was diluted with injectable distilled water to prepare 5 endotoxin solutions varying in concentration. The standard solutions and the sample were tested by rabbit pyrogen test and were pipetted (50 mul) into each well of the microtiter plate. In addition 50 mul of the endotoxin-specific Limulus reagent for colorimetry. The microplate was then set on the measuring apparatus at 37 degreesC for 30 minutes. The change in absorbance at 405 nm was monitored at intervals of 15 seconds. The first threshold value was set at 0.005 and the second threshold value was set at 0.015. The time required for the parameter of the enzyme reaction to change from the first threshold value at which the absorbance was 0.005 to the second threshold value at which the absorbance was at 0.020 within the amount of change from the first threshold value (0.15) was measured.

L106 ANSWER 5 OF 9 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN
AN **1999-496664** [42] WPIX
DNN **N1999-370091** DNC **C1999-145933**
TI Insect body fluid active substance measuring agent - useful for bacterial detection kit.
DC B04 D16 S03
PA (SEGK) SEIKAGAKU KOGYO CO LTD
CYC 1
PI JP 11196895 A 19990727 (199942)* 27p C12Q001-26
ADT JP 11196895 A JP 1998-14842 19980108
PRAI JP 1998-14842 19980108
IC ICM C12Q001-26
ICS C12Q001-00; C12Q001-44; G01N033-50; G01N033-53; G01N033-569
AB JP 11196895 A UPAB: 19991020
NOVELTY - The measuring agent of an insect body fluid active substance peptidoglycan is new and comprises a reaction inhibitor which suppresses the (**1-3**)- **beta** -**D-glucan** recognition protein (**beta** GRP) group reaction of professional **phenol oxidase** cascade in insect body fluid. DETAILED DESCRIPTION - The measuring agent of peptidoglycan consists of one or more substances selected from poly (**1-3**)- **beta** -D-glucoside or its derivative, anti-(**1-3**)- **beta** -D- GRP antibody, aprotinin, alkyl glucoside, (**1-3**)- **beta** -**D-glucan** affinity protein, anti-(**1-3**)- **beta** -**D-glucan** antibody and (**1-3**)- **beta-D-glucan** decomposition enzyme. INDEPENDENT CLAIMs are also included for the following: (1) insect body fluid active substance measuring method; and (2) insect body fluid active substance measuring kit
USE - For bacterial detection kit which is used for water investigation, environmental monitoring, sanitation management, food management, selection of therapeutic agent and confirmation of therapeutic effect.
ADVANTAGE - The measuring agent provides simple, quick, inexpensive, highly sensitive and reproducible method of measuring peptidoglycan.
Dwg.0/9
FS CPI EPI
FA AB
MC CPI: B04-B04M; B04-C02D; B04-G01; B04-N04; B11-C08E; B12-K04A; D05-H04
EPI: S03-E14H; S03-E14H4

L106 ANSWER 6 OF 9 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN
AN **1997-148588** [14] WPIX
DNC **C1997-047464**
TI (Pro)**phenol oxidase** derived from a domestic silkworm -

useful as a labelling oxidase and in pro-**phenol oxidase** activation system for detection of microorganisms.

DC B04 D16
PA (WAKP) WAKO PURE CHEM IND LTD
CYC 1
PI JP 09023886 A 19970128 (199714)* 18p C12N015-09
ADT JP 09023886 A JP 1995-177444 19950713
PRAI JP 1995-177444 19950713
IC ICM C12N015-09
ICS C07H021-04; C12N001-21; C12N009-04
ICI C12N015-09, C12R001:91; C12N001-21, C12R001:19; C12N009-04, C12R001:91; C12N009-04, C12R001:
AB JP 09023886 A UPAB: 19970407
Prophenol oxidase or **phenol oxidase** having the 685 or 634 amino acid sequences given in the specification respectively, are new.
USE - The **prophenol oxidase** and **phenol oxidase** are derived from a domestic silkworm. The **phenol oxidase** may be used as a novel labelling oxidase. The elucidation of the primary structure of the **prophenol oxidase** will contribute to the reconstitution of a **prophenol oxidase** activation system which can be applied to the detection of microorganisms by measurement of **beta -1,3-glucan** and peptide glycan.
Dwg.0/2
FS CPI
FA AB
MC CPI: B04-E03E; B04-E08; B04-F0100E; B04-L03A; D05-C03B; D05-H04; D05-H12A; D05-H12E; D05-H17A3

L106 ANSWER 7 OF 9 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN
AN **1995-208485** [28] WPIX
DNC **C1995-096577**
TI Assay for pro **phenol oxidase**-activating enzyme or for determn. of **beta-1,3-glucan** or peptidoglycan - by measuring hydrolysis prod. of specified arginine-contg. peptide.
DC B04 D13 D15 D16
IN ASHIDA, M; HIRAYASU, K; KAWABATA, T; TSUCHIYA, M
PA (WAKP) WAKO PURE CHEM IND LTD; (WAKP) WAKO JUNYAKU KOGYO KK
CYC 16
PI EP 657546 A1 19950614 (199528)* EN 24p C12Q001-37
R: BE CH DE ES FR GB IT LI NL SE
CA 2136065 A 19950519 (199533) C12Q001-00
JP 07184690 A 19950725 (199538) 14p C12Q001-37
US 5585248 A 19961217 (199705) 21p C12Q001-26
CN 1108696 A 19950920 (199733) C12Q001-26
TW 310343 A 19970711 (199743) C12Q001-00
KR 217964 B1 19991001 (200108) C12Q001-25
EP 657546 B1 20020306 (200219) EN C12Q001-37
R: BE CH DE ES FR GB IT LI NL SE
DE 69430038 E 20020411 (200232) C12Q001-37
ADT EP 657546 A1 EP 1994-118065 19941116; CA 2136065 A CA 1994-2136065 19941117; JP 07184690 A JP 1994-269810 19941102; US 5585248 A US 1994-343943 19941117; CN 1108696 A CN 1994-116043 19941118; TW 310343 A TW 1994-110656 19941117; KR 217964 B1 KR 1994-30449 19941118; EP 657546 B1 EP 1994-118065 19941116; DE 69430038 E DE 1994-630038 19941116, EP 1994-118065 19941116
FDT DE 69430038 E Based on EP 657546
PRAI JP 1993-289513 19931118
REP 4.Jnl.Ref; WO 8302123
IC ICM C12Q001-00; C12Q001-25; C12Q001-26; C12Q001-37
ICS C12Q001-34; C12Q001-44; C12Q001-48

AB EP 657546 A UPAB: 19950721
Assay for measuring **prophenoloxidase**-activating enzyme (PPAE) activity comprises: (a) reacting the PPAE with a peptide of formula X-Arg-Y (I) (where X = an opt. labelled amino acid residue with an opt. protected alpha-amino gp., or an opt. labelled peptide residue with an opt. protected N-terminus, provided that the amino acid adjoining Arg is not Gly or Ala; and Y = an amide or ester residue, an opt. labelled amino acid residue with an opt. protected alpha-COOH gp., or an opt. labelled peptide residue with an opt. protected C-terminus; provided that (I) is hydrolysable to X-Arg and Y by insect-derived PPAE); (b) measuring the amt. of X-Arg and/or Y formed; and (c) determining the PPAE activity on the basis of the amt. measured in (b). Also claimed is an assay for determination of **beta-1,3-glucan** (II) and/or peptidoglycan (III), comprising: (a) contacting a **prophenoloxidase**-activating system with (II) and/or (III) and with (I); (b) measuring the amt. of X-Arg and/or Y formed; (c) determining the PPAE activity on the basis of the amt. measured in (b); and (d) determining the amt. of (II) and/or (III) on the basis of the measured PPAE activity.
USE - The methods may be used for diagnosis of infections caused by (II)-bearing fungi or (III)-bearing bacteria, e.g. Micrococcus, Streptococcus, Aureobacterium, Bacillus or Agrobacterium spp., or for detecting contamination by such microorganisms in water, food and pharmaceutical prods.
Dwg.0/6
FS CPI
FA AB; GI; DCN
MC CPI: B04-C01A; B04-L01; B10-A07; B11-C08E; B12-K04A4; D05-A02A; D05-H09
ABEQ US 5585248 A UPAB: 19970129
Assaying an activity of a **prophenoloxidase** activating enzyme comprises; (1) reacting a **prophenoloxidase** activating enzyme with a peptide chain represented by formula X-Arg-Y (I).
X = opt. labelled amino acid having an opt. protected alpha-amino grp, or an opt. labelled peptide of 2 to 20 amino acids, having an opt. protected N-terminal, provided that the amino acid adjoining Arg is not Gly or Ala, and
Y = organic residue capable of binding to a carboxyl group of Arg by amide or ester bond, or an opt. labelled amino acid with opt. protected alpha-carboxyl group, or an opt. labelled peptide of 2 to 20 amino acids with opt. protected C-terminal,
the peptide chain being hydrolysable into X-Arg and Y by a **prophenoloxidase** activating enzyme derived from an insect,
(2) measuring the amount of at least one of X-Arg and Y produced by the reaction between the peptide chain represented by the formula (I) and the **prophenoloxidase** activating enzyme, and
(3) determining the **prophenoloxidase** activating enzyme activity on the basis for the amount measured in (2).
Dwg.0/6

L106 ANSWER 8 OF 9 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN
AN **1989-203319** [28] WPIX
DNN **N1989-155063** DNC **C1989-090457**
TI Sampling body fluid of insect for **glucan** determn. - by using soln. isotonic to body fluid of insect contg. substance which inhibits reversible serine protease.
DC B04 C03 J04 S03
PA (WAKP) WAKO PURE CHEM IND LTD
CYC 1
PI JP 01142466 A 19890605 (198928)* 9p
ADT JP 01142466 A JP 1987-301305 19871128
PRAI JP 1987-301305 19871128
IC G01N033-57
AB JP 01142466 A UPAB: 19930923

A method of sampling the body fluid of insect comprises sampling the body fluid of insect by using a soln. isotonic to the body fluid of insect which contains a substance inhibiting irreversible serine protease.

The sampling method is carried out by dropping the body fluid of insect in an isotonic soln. to the body fluid of insect contg. a substance for inhibiting irreversibly serine protease, or the sampling of the body fluid of insect is carried out after the injection of the isotonic soln. into the body of insect. In the method sampling of the body fluid of insect can be carried out while depressing the activation of the cascade reaction of **phenol oxidase** contained in the body fluid of insect. The body fluid of insect is usually hemolymph. The soln. isotonic to the body fluid of insect is pref. isotonic sodium chloride aq. soln. Serin protease inhibitor exhibiting irreversible inhibition effect is e.g. (p-amidinophenyl) methanesulphonyl fluoride, phenylmethanesulphonyl fluoride, etc. which is added in an amt. of 0.1-10 (pref. 0.5-5)mM.

USE/ADVANTAGE - The method is useful for sampling the body fluid of insect which is used for the determn., etc. of **beta-1, 3-glucan** (GL) or peptide **glucan** (PG). The body fluid of insect, a material of reagent for the determn. of GL or PG, can be simply and efficiently sampled, while retaining the reactivity to GL or PG.

0/0

FS CPI EPI
FA AB; DCN
MC CPI: B04-B04F; B04-B04M; B04-C02E; B05-A01B; B11-C08C; B12-G01B3; B12-K04A; C04-B04F; C04-B04M; C04-C02E; C05-A01B; C11-C08C; C12-G01B3; C12-K04A; J04-C01
EPI: S03-E14H

L106 ANSWER 9 OF 9 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN
AN **1988-156273** [23] WPIX
CR 1995-045290 [07]
DNC **C1988-069658**
TI Reagents for determining **beta-1,3-glucan** and peptidoglycan - comprising fractions obtd. from insect plasma, esp. silkworm larvae.
DC B04 D16 J04
IN ASHIDA, M; MATSUURA, S; SAKATA, Y; TSUCHIYA, M
PA (WAKP) WAKO PURE CHEM IND LTD
CYC 15
PI EP 270039 A 19880608 (198823)* EN 37p
R: AT BE CH DE ES FR GB GR IT LI LU
JP 63141598 A 19880614 (198829)
JP 63141599 A 19880614 (198829)
US 4970152 A 19901113 (199048)
EP 270039 B1 19950301 (199513) EN 18p C12Q001-00
R: AT BE CH DE ES FR GB GR IT LI LU NL SE
DE 3751109 G 19950406 (199519) C12Q001-00
ES 2068180 T3 19950416 (199522) C12Q001-00
JP 07114706 B2 19951213 (199603) 6p C12Q001-00
JP 07114707 B2 19951213 (199603) 6p C12Q001-00
ADT EP 270039 A EP 1987-117621 19871127; JP 63141598 A JP 1986-288244 19861203; JP 63141599 A JP 1986-288245 19861203; US 4970152 A US 1987-127315 19871202; EP 270039 B1 EP 1987-117621 19871127; DE 3751109 G DE 1987-3751109 19871127, EP 1987-117621 19871127; ES 2068180 T3 EP 1987-117621 19871127; JP 07114706 B2 JP 1986-288244 19861203; JP 07114707 B2 JP 1986-288245 19861203
FDT DE 3751109 G Based on EP 270039; ES 2068180 T3 Based on EP 270039; JP 07114706 B2 Based on JP 63141598; JP 07114707 B2 Based on JP 63141599
PRAI JP 1986-288244 19861203; JP 1986-288245 19861203
REP 4.Jnl.Ref; A3...9123; No-SR.Pub; WO 8302123; 03Jnl.Ref
IC C12Q001-26; C12Q001-37; C12Q001-44; G01N033-66

AB EP 270039 A UPAB: 19950301
A novel reagent for determining **beta-1,3-glucan** (BG) comprises a fraction obtd. from plasma of an insect and capable of reacting specifically with BG.
Pref. the insect is selected from orders of Lepidoptera, Diptera, Orthoptera and Coleoptera, esp. silkworm larvae. Also claimed is a reagent for determining peptidoglycan (PG) comprising a fraction obtd. from plasma of an insect capable of reacting specifically with PG.
Also claimed is a process for collecting a body fluid from an insect which comprises (h) adding an insect body fluid to a soln. which is isotonic to the body fluid of the insect and contains a substance (SPI) irreversibly inhibiting serine protease (SP) and removing an excess amt. of the SPI or (2) injecting an isotonic soln. for the insect to be used which contains an SPI, cutting a part of the body, collecting a body fluid leaking out and removing an excess amt. of the SPI.
USE/ADVANTAGE - By using the BG determination, the detection of contamination with true fungi, examinations of blood dialysis films of cellulose derivs. and examinations of reactive substances reactive to Limulus test other than endotoxin can be carried out with ease and precision. PG can also be detd. easily and precisely.
0/6
Dwg.0/6
FS CPI
FA AB; DCN
MC CPI: B04-B02B2; B04-B04M; B04-C02; B11-C08D3; B12-K04; D05-H05; J04-B01B
ABEQ US 4970152 A UPAB: 19930923
Two partially purified reagents for and method, of determn.m of **beta-1, 3-glucan** (I) and of peptidoglycan (II) are claimed. Reagents are prepd. by treatment of insert plasmas (obtd. from Lepidopteramm, esp. silk-worm larvae, opthoptera, and colerptera) to remove substances reacting either with (II) or (I), the fractions being capable of reacting with (I) or (II) in the presence of a zymogen of an esterase hydrolysing N-alpha-benzoyl-L-arginine ethyl, ester or pro-**phenoloxidase** activating enzyme or **phenoloxidase** to activate the zymogen.
ABEQ EP 270039 B UPAB: 19950404
A reagent for the determination of either **Beta-1, 3-glucan** or peptidoglycan comprising a fraction obtainable from plasma of an insect from which has been removed the substance which binds to and reacts with the other compound to leave a fraction capable of reacting specifically with the compound for which determination is desired.
Dwg.0/6

=> d his

(FILE 'HOME' ENTERED AT 06:56:14 ON 12 AUG 2003)
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 06:56:28 ON 12 AUG 2003
L1 1 S US20020197662/PN OR (WO2001-KR106 OR KR2000-2542)/AP,PRN

FILE 'REGISTRY' ENTERED AT 06:57:37 ON 12 AUG 2003
L2 1 S 9002-10-2
L3 1 S 9051-97-2
E .BETA.-GLUCAN/CN
E .BETA.-D-GLUCAN/CN
L4 2 S E49
E .BETA.-DL-GLUCAN/CN
E .BETA.-L-GLUCAN/CN
L5 1 S L4 NOT L3
L6 1 S 14127-61-8

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L7          22 S CA/MF AND ION NOT ISOTOPE

     FILE 'HCAPLUS' ENTERED AT 07:01:38 ON 12 AUG 2003
L8       10783 S L2
L9        2072 S PHENOLOXIDASE OR PHENOL OXIDASE
L10       9448 S L8 NOT L9
L11       5283 S (CATECHOL OR CHLOROGENATE OR CHLOROGENIC ACID OR CHLOROGENIC
L12       9601 S CATECHOLASE OR CRESOLASE OR DIPHENOLASE OR GLUTEOMORPHINASE O
L13        216 S (MONOPHENOL OR MONO PHENOL)()(MONOOXIDASE OR MONOOXYGENASE OR
L14          5 S DIPHENOL()(OXIDOREDUCTASE OR OXIDO REDUCTASE)
L15         16 S DIPHENOL OXYGEN ()(OXIDOREDUCTASE OR OXIDO REDUCTASE)
L16        479 S (EC OR "E C")()(1 10 3 1 OR 1 14 18 1)
L17      16306 S L8-L16
L18      15818 S L6 OR L7
L19      85548 S (CA OR CA2 OR CALCION)(L)ION
L20         36 S L17 AND L18,L19

     FILE 'REGISTRY' ENTERED AT 07:06:48 ON 12 AUG 2003
L21          1 S 7440-70-2

     FILE 'HCAPLUS' ENTERED AT 07:06:50 ON 12 AUG 2003
L22        653 S L17 AND (L21 OR CA OR CALCIUM)
L23        658 S L20,L22
L24       1197 S L3
L25        840 S L5
L26       2328 S BETA(S)1 3 (S) GLUCAN
L27       1206 S BETA 1 3 GLUCAN OR BETA 1 3 D GLUCAN
L28        533 S 1 3 BETA GLUCAN OR 1 3 BETA D GLUCAN
L29        554 S 1 FWDARW 3 BETA GLUCAN OR 1 FWDARW 3 BETA D GLUCAN
L30          9 S ADJUVAX OR IMMUSTIM
L31       1419 S LAMINARIN# OR LAMINARAN#
L32       4476 S BETA GLUCAN OR BETA D GLUCAN
L33         11 S HIGHCAREEN OR HIGH CAREEN
L34        169 S BETA 1 FWDARW 3 GLUCAN
L35         10 S GLUCAN F
L36         22 S L23 AND L24-L35
L37         18 S L23 AND GLUCAN
L38         24 S L36,L37
L39       4879 S L18 AND CA2?
L40         25 S L23,L39 AND L24-L35
L41         22 S L23,L39 AND GLUCAN
L42         28 S L38,L40,L41
L43         16 S L42 AND (PLASMA OR BLOOD OR SERUM)
               E PLASMA/CT
               E E4+ALL
               E E2+ALL
L44          4 S L42 AND E3
               E E5+ALL
L45          2 S L42 AND E3,E2+NT
               E E9+ALL
L46          2 S L42 AND E3+NT
               E E2+ALL
L47         17 S L42 AND E3,E2+NT
L48         16 S L42 AND (HEMOCYT? OR HAEMOCYT?)
L49         21 S L43-L48
L50          7 S L42 AND LYS?
L51         21 S L49,L50
L52          3 S L42 AND CHELAT?
               E CHELAT/CT
               E E14+ALL
L53          2 S L42 AND E4-E5,E3+NT
               E E16+ALL
L54          0 S L42 AND E4,E3+NT
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                E E39+ALL
L55             0 S L42 AND E5,E4+NT
L56             3 S L52,L53
L57             7 S L42 NOT L51
                SEL DN AN 4 6
L58             2 S E1-E6 AND L57
L59             4 S L52,L58
L60            25 S L24-L35 AND (AUH J? OR PARK B? OR JOO C? OR PARK C? OR LEE B?
L61             5 S L24-L35 AND (SAMYANG? OR GENEX?)/PA,CS
L62            27 S L60,L61
L63             6 S L62 AND L17
L64             6 S L62 AND (L18 OR L19 OR L21 OR CA OR CALCIUM OR CA2?)
L65             8 S L63,L64
L66             6 S L65 NOT (ALPROSTADIL OR COLON)/TI
L67             8 S L59,L66
L68            44 S L42-L62 NOT L67
                SEL DN AN L68 16 17 23 25-29 33-36 40-43
L69            16 S L68 AND E7-E54
L70            24 S L67,L69 AND L1,L8-L20,L22-L69
L71            24 S L70 AND (?PHENOLOXIDASE? OR ?PHENOL OXIDASE? OR CALCIUM OR CA
L72            22 S L71 AND (PD<=20010120 OR PRD<=20010120 OR AD<=20010120)
L73            21 S L71 AND (PD<=20000120 OR PRD<=20000120 OR AD<=20000120)
L74             3 S L71,L72 NOT L73
L75            24 S L70-L74
                SEL HIT RN

    FILE 'REGISTRY' ENTERED AT 07:41:35 ON 12 AUG 2003
L76             5 S E55-E59
L77             5 S L76 AND L2-L7,L21

    FILE 'REGISTRY' ENTERED AT 07:42:16 ON 12 AUG 2003

    FILE 'HCAPLUS' ENTERED AT 07:42:36 ON 12 AUG 2003

    FILE 'BIOSIS' ENTERED AT 07:46:03 ON 12 AUG 2003
L78         10097 S L17
L79          5167 S L24-L35
L80          9306 S GLUCAN
L81            84 S L78 AND L79,L80
L82            20 S L81 AND (L6 OR L7 OR L21 OR L19 OR CALCIUM OR CA OR CA2?)
L83            10 S L82 AND INSECTS+NT/BC
L84            10 S L82 NOT L83
L85             9 S L84 NOT FEED/TI
L86            19 S L83,L85
L87            17 S L86 AND 150?/CC
L88            19 S L86,L87

    FILE 'HCAPLUS, BIOSIS' ENTERED AT 07:51:01 ON 12 AUG 2003
L89            30 DUP REM L75 L88 (13 DUPLICATES REMOVED)

    FILE 'MEDLINE' ENTERED AT 07:51:37 ON 12 AUG 2003
L90          5310 S L17
L91          7071 S L79,L80
L92            50 S L90 AND L91
L93            11 S L92 AND (L6 OR L7 OR L21 OR L19 OR CALCIUM OR CA OR CA2?)

    FILE 'HCAPLUS, BIOSIS, MEDLINE' ENTERED AT 07:53:09 ON 12 AUG 2003
L94            30 DUP REM L75 L88 L93 (24 DUPLICATES REMOVED)

    FILE 'WPIX' ENTERED AT 07:53:18 ON 12 AUG 2003
L95          1365 S L9/BIX OR L10/BIX OR L11/BIX OR L12/BIX OR L13/BIX OR L14/BIX
L96          1671 S L26/BIX OR L27/BIX OR L28/BIX OR L29/BIX OR L30/BIX OR L31/BI
L97            13 S L95 AND L96
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L98           3 S L97 AND (A220/M0,M1,M2,M3,M4,M5,M6 OR L19/BIX OR CALCIUM/BIX
L99          10 S L97 NOT L98
                SEL DN AN 5-10
L100          6 S L99 AND E60-E74
L101          9 S L98,L100
L102         39 S L95 AND (AUH J? OR PARK B? OR JOO C? OR PARK C? OR LEE B? OR
L103          4 S L95 AND (SAMYANG? OR GENEX?)/PA
L104          3 S L101 AND L102,L103
L105         36 S L102,L103 NOT L101
L106          9 S L101,L104

     FILE 'WPIX' ENTERED AT 08:17:26 ON 12 AUG 2003
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